

with Home Computing Weekly

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It's the best selling weekly

Vol 4 No 48

THIS WEEK

First Spectrum 128s hit the UK

MYSTERY surrounds the arrival in the UK earliar this month of the first bulk delivery of Sinclair's new Spectrum 128 computer

The consignment of 3000 Spectrum 128 kits manufactured by Samsung in Seoul, South Korea was shipped via Tokyo to MCK Freight, agents acting for Sinclair based in Cottenham, Cambridge

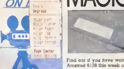
A spokesman for Sinclair, however, refused to comment on the present whereabouts or final destination of the micros "I have no knowledge of any such machines", he said

The computers may be intended to form the basis for a stock-pile of the new models prior to a proposed UK launch early next year The spokesman admitted a launch in this country early next year

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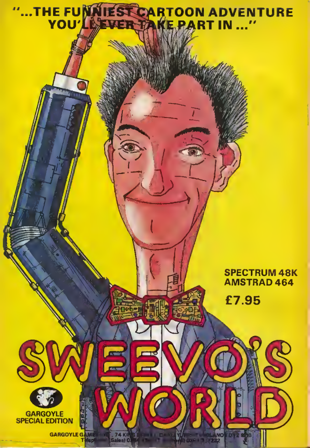
MICRO MAGIC



Find out if you have won an Amstrad 6128 this week or at least some special *Popular Computing Weekly* cassette labels. Enter your personal Micro Magic number into our special computer program on page 14

WHAT'S FEARGAL DOING HERE? FIND OUT PAGE 11

INSIDE ❭ SUPERB MACHINE-CODE ACTION ON SPECTRUM TO TYPE IN


"...THE FUNNIEST CARTOON ADVENTURE YOU'LL EVER TAKE PART IN ..."
SPECTRUM 48K
AMSTRAD 464
£7.95
SWEEVO'S WORLD
GARGOYLE SPECIAL EDITION
GARGOYLE

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Amstrad's DMP2000 printer reviewed

EDITORIAL

It will be strangely ironic if as now seems likely, the Sinclair Spectrum 128 and Commodore Amiga are launched over here in the same month – January next year

Two more different machines would be hard to imagine The Spectrum 128 will cost about £130, it is an enhanced version of an already successful design and it offers little that is new The Amiga is ten times the price, and features a brave exciting design and startling new features

At first glance it would seem unfair to compare the two After all, the Spectrum 128 has more in common with Commodore's other micro the C128, and the Amiga seems more obviously compared with the QL's suggested full 16-bit successor

The Spectrum 128 (like the C128) is a cul-de-sac It stretches an elderly design a little further, yet is constrained by having to maintain software compatibility with the earlier model

The Amiga is free from any such restrictions And the Amiga is the future Not yet at a price we can easily afford, but that will change Full 16-bit machines are here and the race has begun to see who will set the next home computer standard Will it be Sinclair, with the new QL? Atari with the 260ST? Commodore with a cut-down Amiga? Or, perhaps even Amstrad with a new and as yet unseen machine?

What is certain is that refining and refining the older designs only buys a short breathing space Soon the 8-bit micros will be unable to compete with the newer faster models

When both the Spectrum 128 and Amiga are in the shops that will be plain for all to see

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Computer Trade Association Magazine of the Year

Mastertronic goes into business

MASTERTRONIC has moved into business software with *Ski Writer*, an American word processor previously owned by Prentice Hall

However, the company is continuing its budget price policy and *Ski Writer* will cost £14.95 on disc for the Commodore 64 and Apple II, and £13.95 on cassette

The program is also being enhanced to use the capabilities of the 128. It will be launched at the beginning of January

Amiga launch date is set

COMMODORE is pushing forward with plans to launch its advanced Amiga micro in the UK next year with the announcement that the machine will be shown formally to the micro trade for the first time in the UK at the *Which Computer?* Show which runs from January 14-17

The *Which Computer?* Show – a business exhibition open only to the trade – will be the first time Commodore has put the Amiga on its stand

Commodore's stand at the show will be open to third party software companies to take space and show programs running on the machine, as Atari did for the launch of the 520ST at the *Personal Computer World* Show

"We are hoping for a strong display from software houses," said Chris West, Commodore UK's software evaluation manager "We are holding a software developers conference at the beginning of December, and the companies know they must have produced something – even if it's only a few screens – by the time of show to get it on display "

"There will also be some American products mainly entry level programs, but also things like *Graphicraft*, *Textcraft*, and, I hope, *Musicraft*, plus one or two games, but not too many "

US Gold and Beyond in Superman clash

BEYOND Software and US Gold have been involved in an extraordinary row over publication rights of *Superman*, the Commodore 64 game licensed from US company First Star

Beyond which was recently the subject of a take over by British Telecom, holds manufacturing and publishing rights for *Superman* in the UK, and US Gold has the corresponding licence for France and Germany

However last week Beyond heard that US Gold's European version of *Superman* had been offered to British distributors for sale in this country

Last Thursday Beyond sought a High Court injunction against US Gold to stop it from selling *Superman* under the US Gold name in the UK

However, US Gold's general manager, Tim Chaney, said, "US Gold has not offered to sell *Superman* to a distributor in the UK. Of course, it is possible that another European distributor may have wanted to export it to them

The dispute has now apparently been settled out of court "I have a written undertaking from US Gold which says they will not infringe our UK exclusivity to *Superman*," said Bill Delaney, Beyond's managing director

"We have also agreed that Beyond will be involved in monitoring US Gold's distribution of the game

"US Gold's version of the game was being offered to distributors over here but nearly all of them refused to take it, I'm happy to say "

Spokeswomen from both distributors Lightning and Microdealer UK confirmed that they had been offered US Gold's *Superman*.

Although US Gold's version is planned for sale through US Gold France and US Gold Germany the German version had its documentation in both German and English "The reason for that is to cater for the large contingent of British armed forces in Germany," said Tim Chaney

Beyond's *Superman* on the Commodore 64 will be priced at £9.95 and available this week

The company also has versions for the Spectrum and Amstrad in development, which should be available by the end of the year

First Spectrum 128s hit UK

◀ continued from page 1

was a possibility "A British version of the Spectrum 128 may be introduced in Spring 1986 "

Another possibility is that the Korean-manufactured micros were en route to a destination outside the UK The Spanish version of the computer is now available in Spain and though it is being manufactured over there, demand for the new model is expected to be very heavy in the run-up to Christmas

Samsung, which manufactured the 128s, already manufactures the Spectrum Plus and QL for Sinclair for sale in the Far East

At the time of the Spanish 128's launch Sinclair indicated that it hoped also to begin production in the UK Following the favourable outcome of negotiations with its major creditors two months ago Sinclair's British manufacturers of the Spectrum Plus and QL Timex, Thorn EMI and AB Electronics – are thought now to be discussing the possibility of assembling the Spectrum 128

Commented AB Electronics' chairman Henry Kroch, "We are making the Spectrum Plus again now but we will not necessarily make the 128 – that depends on the outcome of our present negotiations with Sinclair "

Automata's Deus revived

DEUS EX MACHINA, Automata's ill-fated computer 'movie' which featured an audio soundtrack with contributions from Frankie Howerd, Ian Dury and Jon Pertwee among others, is to be relaunched by Electric Dreams Software.

Deus ex Machina

Despite being voted Computer Game of the Year 1984 by the Computer Trade Association, sales of *Deus* were extremely low, due to Automata's somewhat fraught relationship with trade distributors

"It's simply a rerelease, with no additions or modifications to the game," said Electric Dreams' managing director Rod Cousens "We felt that the program deserved it because of its innovative qualities But we will market it much more strongly

Deus ex Machina from Electric Dreams will be produced initially for the Commodore 64 at £9.95 a reduction from its original price of £15. It is due out in the second week of December The Spectrum version will follow.

American boost for Acorn's BBC micros

ACORN is to re-enter the United States market through a $1 28m (£0 87m) deal with the British American Scientific Instruments Corporation (BASIC), of Texas, a subsidiary of the Mexican electronics manufacturer and distributor Datum

Datum is acquire all existing stocks of the American version of the BBC micro, and has also been given manufacturing rights by Acorn. It hopes to produce and distribute BBC machines and peripherals both to the US, and Central America, and eventually to South America as well

"Our association with Datum goes back a few years, and they have already developed a Spanish keyboard for the BBC," said Valerie Holt, Acorn's corporate communications manager "Datum will sell a Spanish machine to the Hispanic-speaking population of the southern United States as well as the American version

"Instead of losing money in the States, we will now be making some Datum has a large distribution network throughout America."

Micronet helps charity appeal

MICRONET, the interactive database held a special edition of its Celebrity Chatline feature to raise money for the BBC's Children in Need Appeal last week.

The celebrities in question who included Selina Scott actor Paul Nicholas, several members of the *Eastenders* cast and astronomer Patrick Moore, moved to Micronet's office after appearing on screen at the BBC to answer questions from Micronet subscribers who were charged per question The money raised went to the Appeal.

Commodore announces more losses

COMMODORE International has announced a loss for the three months up to September 30th of $39 2m (about £30m) on a turnover of £159m (£120m) This follows its fourth quarter (up to June 30th, 1985) loss of $124m (£98m) and an annual loss of $114m (£90m) for the year ending June 1985 (see *Popular Computing Weekly*, October 17)

These latest figures are worse than expected but Commodore International's chairman Irving Gould is still predicting a return to profit by December Continuing development costs on the Amiga and C128 have been blamed for contributing to the poor results

AMX mouse uow out on Spectrum

THE FIRST 'mouse' is now available for the Spectrum Plus.

From AMS, which already produces its *AMX* mouse system for the BBC and Amstrad, the Spectrum package comprises the mouse itself, a dual mouse and Centronics interface and a number of software utilities *AMX Art*, *AMX Colour Palette* and *AMX Control*.

The programs all use icon driven pull-down menus and *AMX Control* provides 28 new Basic commands, a machine-code Basic interpreter extension program and icon designer

The complete package costs £69 95 Details from AMS, Green Lane, Appleton, Warrington WA4 5NG

Letters

Lenslok 'bug'

Mr Ioannou's letter, published in the November 21-27 issue, unfortunately contains some inaccuracies regarding the use of Lenslok in our Spectrum version of *Elite*

Firstly, there are no limitations to the use of Lenslok as regards television colour or size, with the exception of very small portable TVs (5 inches or less) The few people who have experienced problems with Lenslok did so, not because of the system, but because of a 'bug' which crept into our instruction sheet, which has now been corrected

Since Mr Ioannou's letter was published we have contacted him and he can now implement Lenslok perfectly on his 26 inch TV It should be noted that he is now using our new instruction sheet, which is available free of charge to all *Elite* owners, from the address below

Secondly, regarding his point about unnecessary protection on *Elite* he forgets that most people now have access to a photocopier Piracy costs the software industry a massive amount of money every year Companies attempting to re-coup this lost profit must inevitably charge more for their software If we are to prevent these charges being passed on to the innocent games-player then we must seek to use more and more sophisticated protection systems

Even if there are a few teething problems this is clearly more desirable for everyone than having to pay out more hard earned cash because of piracy.

Phil Pratt
Marketing Manager
Firebird Software
Wellington House
Upper St Martins Lane
London WC2

Caught-out

Like your previous correspondant (*Letters*, November 21), I would like to complain bitterly about the Lenslok anti-piracy system on Spectrum *Elite*

With a 20 inch receiver I did not find it possible to obtain the calibration required to match the supplied piece of plastic.

With great care it is sometimes possible to observe the "OK" through the lens system but the eye must not be moved from this reference You are then expected to decode further letters and quickly key them in blindly, still without moving the eye in case you have guessed wrong The program only allows a few seconds for this before presenting new codes

I would suggest that the incorporation of this system could lose more sales than any that illicit copying would have done

Once caught out, I doubt if I will buy another program with such protection

R H Bradley
21 Dedmere Road
Marlow

Clapham Elite

I have discovered a bug in Firebird's Spectrum *Elite*

Once you have got through the Lenslok security loader press *Y* in answer to *Load new Commander Y/N* Then press option 2 and save your position to tape

Exit the menu with 3. Now the surprise you will be berthed around the planet Tigean with Elite status, 653425253 5 credits and enough hardware to decimate half the universe this side of Clapham!

Paul Hughes
Room 117
West Wing
Guys House
Guys Hospital
London SE1

Erasing Tasword

Just a short program for the 48K Spectrum to give the Microdrive version of *Tasword II* the ability to erase a file from within the program.

22 *Print at 0,0 "Erase Text File e"* **25** (Take out *Gosub 4000*) **100** *If b=101 then let i=0* **200** (Take out *Gosub 4000*) **605** *If b=101 then go to 8000* **790** (Alter *Goto to 20*) **860** (Alter return to *Go to 20*) **1110** (Alter *Goto* to *20*) **6020** (*Alter Goto* to *20*)

8000 *Cls Cat md. Print at 10,19, "Enter file" at 12,19, "to be", Flash 1 "Erased" Flash 0* **8010** *Let a$=Inkey$* **8020** *Input a$ If a$= Then go to 8010* **8025** *Cls Print at 10,11, Flash 1 "Erasing", a$, Flash 0* **8030** *Erase "m",md, a$* **8040** *Go to 20*

You can then run the program and erase *Run* and *Tasword*, then resave from within the program. I have found it very useful

R. Abrahams
14 Mill Road
Wingham Well

Faultless

I feel I must write to say your review of Ultimate's *Nightshade* was faultless.

It is high time Spectrum owners realised that the sun does not shine out of Ultimate's joystick ports!

Having said that I must admit their previous releases were all brilliant

Jon Rose
14 Lion Road
Nyetimber
Bognor Regis
Sussex

C64 Rom Change

It was interesting to see an article by Tim Decker in the September 19 issue concerning permanent changes to the Commodore 64

I have been doing something on similar lines but have extended it to cover the blowing of an Eprom containing the changes and the manufacture of a suitable adaptor to convert the 28-pin Eprom to the 24 pins of the Rom it replaces.

If anyone wants to know more perhaps they could drop me an SAE.

Robin Harvey
30 Wimborne Close
Coombe Glen
Cheltenham
Glos

Twin furore

There has been much furore recently about Amstrad's twin-deck unit.

Once again, we are told that such devices 'breach copyright' and should therefore be banned

There seems to be a misconception (deliberately fostered in part, by the software houses themselves) as to what, exactly, 'copyright' is and what rights the consumer gets under it

Contrary to popular belief, the copyright laws are not intended to block legitimate usage of items for which the consumer has paid good money

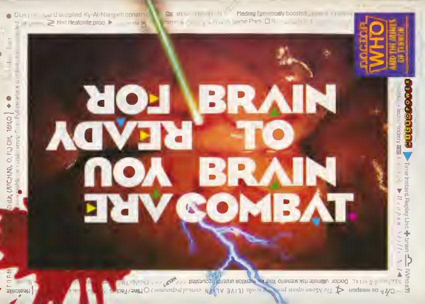
Magnetic media are not infallible Indeed, on the contrary, my experience is that protection schemes are self-defeating, forcing me to break the protection and make a copy simply so that I have one which will load

It is true that these gadgets *could* be used to break the law, making multiple copies to give or sell to others, but 'could be' is nowhere near strong enough a reason to ban them

Whilst condemning the lawbreaking potential of their customers, the software people all ride around in cars, don't they know that cars could be used to *kill* people? That's far worse than a few illicit copies! So, let's ban cars, knives, headache tablets etc

I sincerely hope that the revised copyright legislation does not rescind the provision of the 1956 Copyright Act which specifically permits the purchasers of copyright material to copy it for their own use

Gaal Dornick
42 Mallow Drive
Hardinville



ARE YOU READY FOR
BRAIN TO BRAIN COMBAT
DOCTOR WHO AND THE MINES OF TERROR
MICROPOWER
Time Instant Replay Unit + brain (Who's?)
Madrag [genetically boosted
Halt Heatonite prod
Doctor ultimate risk scenario


"What's that picture supposed to be?"
"Er, eye-catching, that's what it's supposed to be."
"But it doesn't tell you anything about the great new icon-driven Bettle of Britain strategy game, THEIR FINEST HOUR, from Century Communications, publishers of THE FOURTH PROTOCOL. I mean, what's it got to do with using your skill and judgement to stem the almost inexorable advance of Goering's Luftwaffe? Does it tell you anything about the deployment of Spitfire squadrons and ack-ack batteries, the allocation of fresh pilots, or keeping in touch with the weather forecast? How about the daily reports you have to make to Winston Churchill, and the pulse rate feature where you control the speed of the game?
"Well, sir"
"Right, we'd better hurry up and design a new ad before the game hits the streets on 9 December, and people start writing to and phoning Century Communications at 62-65 Chandos Place, London WC2N 4NW, Tel 01-240 3411 and asking for copies."
THEIR FINEST HOUR
John Wilson
and Nicholas Palmer
THEIR FINEST HOUR
CC
48K Spectrum
Their Finest Hour — a great strategy game simulating
The Battle of Britain, by Nicholas Palmer and John Wilson
Published by Century Communications for the 48K Spectrum at £9.95

Sharkey's machines

When you meet Feargal Sharkey, ask him why he's become such a wimp since the *Undertones*," demanded a friend of mine who still nostalgically keeps a ripped T-shirt and bondage trousers in the back of his wardrobe.

Certainly the contrast between the Feargal Sharkey of today and of *Undertones* days could hardly be more marked.

At least he still has the same distinctive voice, he must be one of the few singers who needs to smoke heavily to retain their voice.

Feargal sees his departure from the *Undertones* as his natural route to expand his musical range. "I just got bored, really. We'd made four albums and toured non-stop for five years. After that, I simply wanted to go and do something else."

But what, you may ask, is Feargal Sharkey doing in *Popular Computing Weekly* in the first place?

The reason is that he leaves most people who like to call themselves micro buffs on the starting block. Not only does he rush home to his Apple MacIntosh, Tandy 100 and Commodore 64 whenever possible, but he raves over *Archon*, accesses Micronet day and night, freaks over his Fairlight, and – here's the crunch – in a previous existence, he actually used to *make microchips*.

"I worked at Thorn Electronics in the days before it was Thorn EMI as an electronic engineer designing chips, and although I got sidetracked by music fairly early on, I'm still interested.

"I decided one day that I wanted to make my own record, and I went out and did it. It cost me the grand total of £108 including VAT, for a four track single! Not bad, seeing as it made the top 30.

"Now computers have made music a lot simpler – the polyphonic step-time synthesisers where you play in one note at a time, and it comes back at you like real music mean that you can really do anything you like."

Doing anything he liked on the synthesiser evidently paid off. First of all there was *The Assembly*, where he made up a duo with Vince Clarke, ex-*Yazoo*, which spawned the top-selling single *Never Never*.

Then came the solo career, with *Listen to your Father*, *Loving You* and the number one hit *A Good Heart*.

Powerful songs which owe a lot to powerful toy as his brand new Fairlight – £58 000 worth of electronic music. "It's absolutely wonderful – I've hardly slept at all since it arrived.

"For a start the manuals are about four feet high, and once you've got the idea, you stay up all night, every night, smashing dinner plates against the wall, slamming doors and so on, just to sample the noise they make in 90 different ways. And as for the sampling time, it's about a week long . . . no, no, I can't remember exactly, but it's fairly astonishing."

He's hardly had time to use his computers recently – he uses the Tandy for Telecom Gold, mailboxing his manager and agent and basic accounts, the Commodore 64 for games and Prestel/Micronet, and the Mac as a sophisticated toy. His enthusiastic membership of Micronet led to his [illegible] an invitation to appear on [illegible] Chat last feature, [illegible] questions trivial and [illegible] from Micronet [illegible] there is a [illegible] Europe to promote [illegible] *Heart*, numerous photo sessions now the song has reached No [illegible] a live appearance on *The Old Grey Whistle Test* last week, and ditto for Terry Wogan.

But the micros certainly haven't been stashed away to the back of a cupboard. "I don't really like watching television in my spare time but I find the databases good relaxation."

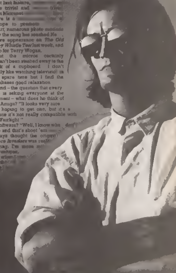
And – the question that everyone is asking everyone at the moment – what does he think of the Amiga? "It looks very nice. I'm hoping to get one, but it's a shame it's not really compatible with the Fairlight."

Software? "Well, I know what I [illegible] like and that's shoot 'em [illegible] always thought the original *Space Invaders* was really [illegible] boring. I'm more [illegible] adventures, but [illegible] in [illegible] text [illegible] should be *Elite* – I think it's wonderful but I've never been able to get a copy. I tried to buy it when I got back from the US tour but unfortunately I had the humiliation of having my Access card refused for being over the limit – having been out of the country for four months, I hadn't made any repayments."

He shouldn't find it too difficult to pay off Access now. The new album, *Feargal Sharkey*, has received excellent reviews and the follow-up to *A Good Heart* is being released next week.

"It's called *Someone to Somebody*, and I would love it to be number one over Christmas," says Feargal.

Christina Erskine



ROUGH-CUT GEMS

Like all good computer manufacturers, promises of items available for or with a machine are made good – even if they're almost six months late

Atari promised to bundle a wordprocessor with the 520ST, namely ***Gem Write****, written by Digital Research and at long last it is nearly available.*

So also is its stable companion, ***Gem Draw****, a design package which will be sold separately*

Here Jeremy Vine previews the two packages for the first time.

Program *Gem Draw* **Micro** Atari 520ST **Price** £149 95 **Supplier** Atari UK, Atari House, Slough, Berks

Gem Draw, not to be confused with *Gem Paint* (also 'to be' bundled with the machine), is a simplified CAD (Computer-aided Design) package which allows the user to mix text and graphics on-screen, to create drawings and diagrams The layout of the screen display is similar to all *Gem* packages with a menu bar running horizontally across the top of the screen From this position the user can call one of eight pull-down menus Used in combination with a set of drawing tools shown vertically on the left of the screen window, all drawing action can be controlled from the mouse

The drawing area displayed on the screen is only a window on a much larger drawing board Moving the mouse pointer over the Panner icon, causes the screen to display a reduced version of the entire drawing area The Panner icon is useful not only in showing diagrams that spill beyond the initial drawing area but also when using the Zoom command.

Zoom is called from the page menu and is, as you would expect, a facility enabling specific areas of the screen to be magnified for detailed touching up. The picture often zooms into an area which you don't wish to enlarge and this is where the Panner is of use From the global view of the drawing board, the magnified area is shown by an outlined boxed area. This box shows the window area on the normal display screen and can be moved by mouse

The drawing options offered are relatively primitive in relation to a professional CAD package and these consist of icons representing rectangle, rounded box, circle, polygon, freehand draw, line, arc and text When anything is drawn regardless of size or shape and the mouse button released (usually indicating the end of a drawing process) a box is immediately placed around it These are called 'extents' and show the currently worked-on element of a picture This allows all elements of a picture to be moved independently of each other The extent box has a further use in changing the proportional dimensions of an element's width or height In this way a shape can be stretched and distorted

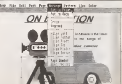
The drawing tools for creating ellipses circles, rectangles and squares are activated from the mouse By dragging the mouse and holding down the left mouse button any of these shapes are created At this stage the user can then use the Line, Color or Pattern menus to complete the drawn element

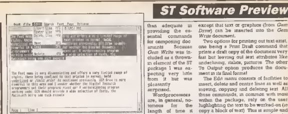
A total of 39 shading patterns are available from the Pattern menu. By pulling down the pattern menu and selecting a specific design pattern the area within the shape (inside the current extent box) is then filled with that pattern. The Line menu provides options for thickness of lines, whether the lines are dotted, broken or connected and a facility for placing arrows at the ends of lines (useful for flowcharts) The 'Color' menu is of use only if you possess a colour monitor as the monochrome version shows only black or white – no shades

Text can be freely integrated into any area of the screen and different character fonts (size, italics, etc) can be chosen from the Font menu The choice of fonts was stronger in *Gem Draw* than in *Gem Write* which seems really odd

Any element of a drawing can be deleted and replaced if necessary, by use of the Edit menu. The File menu offers the usual array of filing commands for storing drawings on disc and output to a printer or plotter The version of the program I preview here contained a driver on a separate disc for Epson compatibles

Finally what has to be the most impressive part of the package – the Arrange menu Drawing elements can be placed behind or in front of other drawing element and drawings aligned and centered on-screen This facility is sim-





phcity itself to use but delightfully powerful in effect.

Gem Draw as a basic drawing tool is wonderful to use because of the window-icon-mouse-pointer environment and this was borne out by its instant use with little reference to a manual

However it's by no means a heavyweight in CAD programs and this is not its intended market

I really enjoyed using *Gem Draw* and it will no doubt find a place in many a program library, not least in conjunction with the other piece of software I preview here, *Gem Write.*

Program *GemWrite* **Micro** Atari 520 ST **Price** Free with machine **Supplier** Atari UK, Atari House Slough, Berks

Gem Write is the freebie wordprocessor included with the 520ST computer.

It is a basic level package but more than adequate in providing the essential commands for composing documents Because *Gem Write* was included as a thrown-in element of the ST package I was expecting very little from it but was pleasantly surprised.

Wordprocessors are, in general, notorious for the length of time it takes to become acquainted with the most rudimentary commands, let alone the more complex facilities *Gem Write* goes against the grain in being quick to use possessing facilities that are adequate for home and small-business use Without reference to a manual (I didn't have one!) I mastered all of *Gem Write's* commands in a space of time that would normally be used to acquire the absolute basics on another wordprocessor This is very much due to the nature of mouse driven programs

The program can be controlled through a mixture of mouse and keyboard controls with the pull-down menu options selected by the mouse also available from the function keys on the ST keyboard. Typing on the screen starts from wherever the flashing cursor bar is placed (by moving the mouse) and text is automatically wrapped-round and justified at the end of a line

Six menu options exist besides the usual Desk menu, these being File, Edit, Search, Font, Page and Options

File is the same as for *Gem Draw* except that text or graphics (from *Gem Draw*) can be inserted into the *Gem Write* document.

Two options for printing out text exist, one being a Print Draft command that prints a draft copy of the document very fast but leaving out text attributes like underlining, italics, pictures The other To Output option produces the document in its final format

The Edit menu consists of facilities to insert, delete and centre lines as well as moving, copying and deleting text All these commands, in common with most within the package, rely on the user highlighting the text to be worked-on (ie copy a block of text) This is simple and involves moving the cursor to the relevant text, holding down the mouse button and dragging the pointer over the area of text concerned

The Search menu is for finding and replacing text as well as instructing *Gem Write* which page of the document to display The screen shows only part of a physical page but a page-break line is shown at the end of each page.

The Font menu is very disappointing and offers a very limited range of styles, these being confined to text being printed in normal, bold, underlined or italic print As mentioned, *Gem Draw* is more powerful in this area and I wonder whether the Digital Research programmers got their programs mixed up! A wordprocessing program working under a Gem-like environment should provide a wide selection of fonts, look at the Macintosh example

Margins, Tabs and Rules are set from the page menu as well as the formatting options such as justification, pagination, line spacing, page length, etc All these options are clearly presented and easy to implement The document can be scrolled in either direction by holding down the arrow keys on the keyboard with page-jumps effected by the combination of the *Control* and *Arrow* keys

As a wordprocessor, *Gem Write* lacks the finesse of more professional packages but is still a very fine basic level wordprocessor

I liked both packages On the plus side was their ease of use and friendly front-end appearance On the minus side, both packages lack a number of features that can be found on other pieces of software

Gem Draw *at a proposed price of £149 95p is way over the top for this kind of packages and is at odds with the pricing of similar products on the ST (£50 to £100) Perhaps sanity will prevail Anyway, a good attempt by DR and perhaps a promising sign of better things to come*

Jeremy Vine is the author of *The Atari ST Companion*, published by Sunshine Books, price £8.95p.

The VT52 Emulator Software

One of the most under-publicised features of Gem on the Atari ST is the inclusion of a terminal-emulator This nifty little piece of software is one of the few programs actually available to early purchasers of Jack Tramiel's super-micro It is also very useful as it immediately opens up the world of communications to the software-starved ST-user

Selecting the Desk option from Gem allows you to choose the characteristics of the built-in RS232 port or to run the terminal-emulation program RS232 baud rate can be selected as 300 (for bulletin boards), 1200, 4800, and 9600

Duplex can be set to full or half Normally this would be set to full duplex when using a modem, although this depends on the computer at the other end of the line I found that full duplex was fine for bulletin boards but when connected to a friend's computer (via modems and Telecom) half duplex was more practical.

The RS232 connection itself is refreshingly straightforward You need a cable with a 25-pin D-type plug although this must be a female type rather than the more usual male type Pin connections usually cause all sorts of problems with RS232 but Atari seem to have stuck to the standard as I had no trouble at all connecting to the two modems that I tested. Watch out for high prices on ready-made cables, though

Terminal-emulation is the simplest type of communications software You can send characters as they are typed in and received text is shown on-screen as it comes in You cannot send or receive pre-prepared files, nor can you exercise much control over things like linefeeds, control-codes and display format

In conclusion, the terminal-emulator will let ST users who have less than a passing interest in Logo get on with using their machines while they wait for the production versions of Gem Write and the rest of the promised software

John Cochrane



Popular cassette labels

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We are giving away an Amstrad CPC6128 128K micro – worth £399 – every seven days until Christmas. Not only that, but every Micro Magic card is a winner – every card wins a runner-up prize of free Special *Popular Computing Weekly* cassette labels

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BY D.K.MARSHALL

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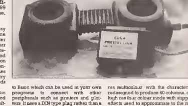
Prestel link

Hardware *Amstrad Prestel Link* **Micro** Any Amstrad CPC **Price** £29 99 **Supplier** Cirkit Holdings, Park Lane, Broxbourne, Herts EN10 7NQ

The most important thing to say about this package is that anyone with an Amstrad CPC computer should drop everything, get out their cheque books, and buy it now! It represents remarkable value for money, and whilst it may not have the sophistication of labour saving features of more expensive communicator set-ups, it provides an unparalleled opportunity for an entry into the world of Prestel, Bulletin Boards and the like

The package is a joint production from Cirkit, who produce the hardware, and Honeysoft, who have written the software For your money you get a RS232 interface, complete with driving software, a Protek battery-driven acoustic modem (built by Cirkit) and, gratifying with such a budget purchase, some quite usable and readable documentation

The interface is not as flexible as some you can buy, it offers 75/1200, 1200/1200 and 300/300 baud rates with handshaking The latter is surprisingly not supported by the modem supplied, but the available options are certainly sufficient to allow you to access the most popular telephone services including the new AMSNET boards for Amstrad users, and of course other modems can be fitted if the hobby really grabs you Incidentally, the interface will not work with CP/M but the accompanying software provides you with RSX extensions



to Basic which can be used in your own programs to connect with other peripherals such as printers and plotters It uses a DIN type plug rather than a D connector

The modem is the acoustic sort that gets both ends of the phone stuffed into it, you are probably familiar with them. It is said to be more reliable than some direct contact modems (the ones that plug into the wall telephone socket) and compatible with most standard designs of telephone, which sounds worrying for those with the standard designs of phone that will not fit In practice you shouldn't have any problems unless you have a Mickey Mouse set or keep your phone in a tiny alcove in the hall

The accompanying software does several nice things For a start there is no Amstrad display mode that directly corresponds to Prestel standards, 40 columns and eight colours, so you are offered the choice of operating in low-res multicolour with the character set redesigned to produce 40 columns, or in high res four colour mode with stippling effects used to approximate to the missing colours The last received page is held in a memory buffer so you can change modes, etc, without losing the picture

On loading you are given a menu choice of options, there is a Prestel mode, a terminal emulation mode compatible with Telecom Gold and the like, and a mode for sending and receiving ASCII file text or programs down the phone from one Amstrad to another The latter has its own error detecting system

Unless you have a specific use for a modem that exceeds these capabilities, this package is an excellent value means of testing out a new hobby and provides you with an RS232 that will work on most applications as well Worth 30 quid of anyone's money

Tony Kendle

Datapad 16C

Hardware *Datapad 16C* **Micro** Commodore 64 **Price** £39 95 **Supplier** Voltmace, Park Drive, Baldock, Herts

Notwithstanding its excellent keyboard, the Commodore 64 does have some deficiencies

From my days with the old Pet computers, I can recall the value of the numeric pad on the right-hand side of the main keyboard This convenient duplication of the number keys was a particular boon.

The idea behind the Datapad 16C is to provide the same for the C64 – an additional programmable pad of 16 keys

What you get for your money is a wedge-shaped metal box about six inches square The two leads from the pad plug into the two joystick ports and the standard of construction is good with high quality keys mounted on a decent glass-fibre circuit board.

The feel of the keys is better than that of the 64 itself and a dimple is provided on the *5* key as a reference point The keys are marked with the ten numbers, full stop, equals and the four standard arithmetic operators with the normal layout for a numeric pad.

So you plug it in, switch on and what happens? Well, not a lot Pressing the keys simply duplicates some of the other keys To make the system work a small piece of machine code must be installed This code tweaks the look-up table in the Rom coding and links the modification into the operating system.

The software gives detailed instructions on how to use the pad and allows you to define the keys to give the characters of your choice You have the option to save the definitions on tape or disc

Clearly, this pad is aimed at the serious user First it pinches both joystick ports, precluding games, and second you cannot get any of the graphics characters since they have been reprogrammed. One strange feature of the system is that *Shift Lock* must be engaged before the keys give the required responses

So who might use this product? Anyone who has to input a large quantity of numerical information It will clearly be of value to anyone keying data into databases or payroll systems

The particularly attractive feature of this product is the open way information is provided. The two pages of instructions supplied give details on how to adapt the software to work with discs and how to relocate the machine-code so that it doesn't interfere with your own software I wish other manufacturers, including Commodore, would adopt such an open attitude

Inevitably it will have a limited market, but it is a robust, well made product which functions efficiently

Alan Webb

DMP-2000 Printer

Hardware DMP-2000 printer **Micro** Any with Centronics printer connection **Price** £159 95 **Supplier** Amstrad Consumer Electronics, 169 Kings Rd, Brentwood, Essex

Amstrad has done it again!

So good is its new dot-matrix printer that I am very likely to run out of superlatives before the end of the review

Let me say right now that if you do not yet own a printer, then this is most definitely the one for you. If you do then this is very likely better than the one you presently own.

At less than £160 (or only £136 through the Users Club) this is without doubt one of the best value for money dot-matrix printers available today offering an unusually wide range of type styles

The price includes the interface cable to the Centronics port on the back of the computer, so it's only a matter of plugging in and away you go (apart from a plug)

Cosmetically the printer is coloured in what now is recognised as Amstrad dark grey, neatly matching the other hardware from the same stable The most visually unusual aspect of the printer is the pair of folding legs that the machine stands on, thus allowing storage of fan folded paper underneath. This tidies up the work station no end.

Apart from the printer itself, you get a comprehensive handbook and on the underside of the polystyrene packing, so well secreted away that mine was first thrown into the dustbin, the all important printer ribbon

All you need to know about plumbing-in the printer is adequately explained in chapter one of the accompanying handbook However, do beware the instructions on Page 7 with regard to fitting the cable into the port on the back of the computer The plug has to be presented to the port with the ribbon cable emerging from the *top* of the plug and not from the bottom as shown in the book

Defaulting to Pica typeface at switch-on, this being perfectly suitable for draft work or program listings, other type styles are Elite, Proportional, Condensed and Near Letter Quality The following functions can be applied to these main typefaces Subscript, Superscript, Double-strike, Italics and Bold.

```
Popular Comput
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Popular Computing Weekly
Popular Computing Weekly
Popular Computing Weekly
Popular Computing Weekly
Popular Computing Weekly
Popular Computing Weekly

This is an example of Near
Letter Quality printing
```

Additionally both Underline and Double-width modes may be applied.

Consequently a great variety of fonts are readily available Examples of all the various Escape codes and sequences are given in the manual and all are written in either sensible English or Locomotive Basic As an added bonus to anyone out there with a computer other than an Amstrad, all the commands are given in Microsoft Basic, BBC Basic and Commodore Basic

Five modes are offered for graphic printing The example in the figure was produced using the bit-image mode This review only scratches the surface of what is possible with this superb piece of hardware

David Holmes

Reviews

Midi music

Program *Advanced Music System* **Micro** Commodore 64 **Price** £14.95 **Supplier** Rainbird, Wellington House, Upper St, Martins Lane, London.

There seems to be a virtual plethora of programmable music software available at the moment like Activision's *Music Studio*, Ariolasoft's *Music Construction Set* and even Melbourne House's *Wham! Music Box*, but quite frankly, they all play second fiddle to this simply astonishing program from Rainbird, the new spin-off from Firebird.

The *Advanced Music System*, hereto referred to as *AMS*, is so comprehensive it can even be used at professional level by musicians who use a Midi keyboard.

The music is entered via a number of different options: for instance, the *Editor* module lets you catalogue in written music format, inserting notes one at a time on to 'electronic sheet music'. Select the *Keyboard* module and you can use the keys of your 64 to play notes and sounds which automatically appear as written music on screen. All manner of instruments and sounds can be reproduced by the program if you play around with it long enough. Calling up the *Synthesiser* option is really where *AMS* comes into its own. The synthesiser creates and edits all the sounds used in the program and can, for instance, take a note, shape and bend it, change its pitch, attack, or duration and in fact, do with it what you will – the possibilities are endless. Also available is a *sequencer* file, which allows tunes to be played back whilst you change or edit the sounds.

THE MUSIC SYSTEM
ISLAND LOGIC
AND SYSTEM
MUSIC FILE M.PRINTER
SOUND FILE S.INSTRAN
BEATS/MIN. 100 ANDANTINO
KEY SIGNATURE D# MINOR
VOICE 1
VOICE 3

There is also a facility to include lyrics directly above the sheet music as it is printed out.

All the on screen information is dealt with using pop up icon graphics, very pleasing to the eye and most of the keyboard operation is via the function keys, keeping operation as simple as possible in such a complex program.

Supplied on the disc are many examples of tunes and sounds, in fact, side 2 is full up with them. I have never heard so many sounds from my 64 and there is no doubt that *AMS* is way ahead of anything else on the market.

Obviously, the disc version is the most complete and comprehensive and although pricey at £39.95, it is a must for any musically orientated person. However, there is a version available on cassette at £14.95, which is substantially cut down. The Midi facility and printout options are dropped, but it is still good value for aspiring musicians.

Andy Moss

Old aged

Program *BC's Quest for Tires* **Micro** Spectrum **Price** £7.95 **Supplier** Software Projects Limited, Bearbrand Complex, Allerton Road, Woolton, Liverpool L25 7SF

WHEELS SPEED SCORE HIGH SCORE
P1 02 00020
P2 02 10 00010

Stoneage antics with Thor who rides around his neanderthal world on a flint wheeled unicycle.

His quest is not to be for tires (sic) but for his bird, Cute Chick (very sick) who has been captured by a dinosaur. So this fossilised Clive leaps on his C1 and pedals off with nary a rock (pun!) until he fails to jump a stone or pothole when he rolls (another pun!). Other hazards include trees with branches to duck and bars to leap over.

The journey progresses with more of the same though up-hill, and there are falling rocks and a flight across a pit by Dooky Bird airlines.

The presentation is shocking and there are some attribute problems way beyond those that are inevitable with the machine. In play it's quite engaging, though your reactions soon become mechanical.

Okay for simple arcade fun but the price is way over the top for something that's patently prehistoric.

John Minson

More sand

Program *Decision in the Desert* **Micro** Commodore 64 (disc) **Price** £14.95 **Supplier** MicroProse Software, US Gold, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham.

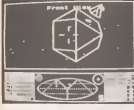
Decision in the Desert follows very closely the format of MicroProse's first strategic level Second World War game, *Crusade in Europe*.

The game is at least as enjoyable to play than *Crusade*; indeed it has some positive advantages. The chief amongst these is that it is much faster moving. There are two reasons for this: one is the smaller scale (one hex equals three instead of six miles), the second is the nature of the desert campaigns themselves. The game faithfully recreates the often chaotic, feel of the desert battles.

MicroProse has deliberately chosen to emphasise this side of the desert war in its choice of scenarios. There are five: Sidi Barrani, Operation Crusader, Gazala, first Alamein and Alam Halfa, each of which contains several sub-scenarios offering the player plenty of choice.

MicroProse omits the second part of the battle, claiming the object was to recreate the cut and thrust of the first half. This the program does very well – a very good strategy simulation.

Peter Baslin



Prime cut

Program *Elite* **Micro** Spectrum **Price** £9 95 **Supplier** Firebird Software, Welling House, Upper St Martin's Lane, London WC2 H 9DL

At last it's here and it's one of those games I'm unbearably enthusiastic to review I've seen *Elite* on other machines and it's my sort of game, combining action with thought, providing a vast scope for free movement, a real adventure through eight galaxies and 2,000 plus planets. As I collect one of the first production copies I'm nervous Will Spectrum owners really be able to indulge themselves in the lifestyle of an intergalactic trader just as Commodore and Beeb owners have?

Even that controversial security system, Lenslok, is persuaded to work second time and I'm at the controls of my Cobra Mk III, launching, practising manoeuvres I play throughout the day I play into the night Have they done it? Yes!

However I must qualify that 'yes' because some aspects of the game are less than perfect For instance, the 3D line graphics are smoother than in pre-production versions, but you can still see the stars through solid objects – a limitation of machine memory, I presume It's not a game for the impatient either, because at the start, without a docking computer, you'll spend ages learning to control the ship Those who prefer a swift shoot em up should return to *Space Invaders* immediately

But I can ignore these 'failings' because of the virtues That very difficulty means that you have to work at this game Combine that with excellent documentation, from the Cobra Owner's Manual to the identification chart, and unlike any other program, *Elite* becomes role playing It fires the imagination and draws you into a credible universe

So if you want to live this adventure, join the Elite, and one day, with years of experience behind us, we ll meet on a space-station in some galaxy far from our starting point and swap stories of space trading

John Minson

Words

Program *New Word* **Micro** Amstrad CPC 8128/PCW 8256 (CP/M Plus) **Price** £75 00 **Supplier** Hewstar Software Ltd, 45 Plovers Mead, Brentwood, Essex

With the releases of the large memory Amstrad machines the amount of available CP/M software has suddenly burgeoned However the price of many of the releases is more than the hardware *New Word*, a word processor, is an exception fo that it has actually undergone some price cutting to attract a wider market but despite that it is still expensive by home micro standards

Perhaps the most important point is that *New Word* in very many respects behaves exactly the same as *Wordstar*, same control commands, same sort of file format etc Some cynics may suggest that this is a positive disadvantage but *Wordstar* dominates professional word processing to an extraordinary degree Jobs are advertised for *Wordstar* trained typists, many professional software packages and printers are configured to fit around *Wordstar* files use the same commands etc

Okay why *New Word* rather than the similarly priced *Pocket Wordstar* Because it has a lot extra that Wordstar doesn't Built in Data Merge (for form letters) with powerful conditional features, an 'undelete buffer for recovering erased blocks, laster response times and better help facilities.

Like most CP/M word processors you will get on much better with two drives, but 80K room can be made on a single drive work disc if you are ruthless

Tony Kendle

On board

Program *Inter Sheet ROM* **Micro** BBC B **Price** £56 35 **Supplies** Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX

When the firm which gave us *Wordwise* produces a *new* chip all BBC owners sit up and take notice

When that program is a spread-sheet both faster and with more features than programs normally costing lots more we pay even closer attention. When it also forms a series of linked utilities which bring instant communication between programs – then we rush out to buy

Inter-Sheet is first rate It offers you a spreadsheet of 36 by 255. You see a section at a time and scroll over the whole lot easily young *Wordwise*-type controls The package has been designed to be very familiar to anyone who uses *Wordwise*.

On spread-sheets you enter data in some boxes and formulae in others The formulae will, for example, total up columns, rows or certain boxes as you specify *Inter-Sheet* has all the usual BBC Basic mathematical functions, most of the logical operators, plus special features such as averaging and summation Even discount tables can be incorporated.

The system is easy to use yet can be adapted to suit most purposes You can adjust box sizes, change the mode, alter colours, centre headings the list is nearly endless

You can dump the spreadsheet or parts of it to a printer, send files to a word-processor or link to other chips in the *Inter* series to pass on details immediately. You can also work with up to 18 different sheets at once in memory

At last spreadsheets have come to the BBC in a top-notch form. *Inter-Sheet* will do for figures – what *Wordwise* did for writing

Dave Waterson

Duo

Program *Zkul* and *West* **Micro** Atari ST **Price** £24 95 **Supplier** Talent Computer Systems, Curran Buildings, 101 St James Road, Glasgow G4 0NS

Zkul and *West*, two text adventures from Talent, have been very successful on the Commodore and the QL

Talent is the first British software house to write a commercially available adventure for the Atari ST

Apart from the colourful scene-setting picture on loading, both adventures are text-only, black-on-white and follow the usual pattern of such affairs, with complex sentence input being possible There are, naturally, a few innovations – the player can ask the computer, "*What is* (this thing) " when confronted with a wizardly-named object, like the trisk (ask the computer what that means) or the cossat (ditto) Typing *Health* gives a rundown of the player's state of well-being, while also shows the number of moves and restores since the game started.

The scenario of *Zkul* consists of well-worn pages from the fantasy book, placing the player in a subterranean complex of dark passages, peopled by short fat gnomes, beset with fiendish mazes and littered with treasure such as pearl necklaces and silver bars. You've seen it all before, but the puzzles therein are pretty esoteric – the aforementioned cossat lands you in a shrinking room which will crush you to death if you're not quick enough to solve the room's riddle A free clue here – try locking the portcullis to enter the underworld!

West, as you may surmise from its title, is set in the Wild and Woolly West (of the late 18th century America), and features bank robbers, rattlesnakes, flea bitten nags and the tumblin' tumbleweed – you can almost hear the sons of the pioneers in the background This is an unusual scenario, but quite successful, offering as it does the chance of winning promotion to Marshal and the ensuing fight against the baddies You start the game with only your six-gun for company The buzzards are lurking licking their beaks and just waiting for you to make a wrong move Like *Zkul*, there is a resurrection faculty available, but this tends to leave the landscape littered with smelly corpses

Both adventures play well, though *Zkul* seems to me to be the more addictive of the two I was disappointed that the extra memory of the Atari was not used to give us more detailed location descriptions, and maybe more puzzles than the original versions, as Talent seems to have done a straightforward conversion (though *West* now contains a good version of a Blackjack game in case you need a rest from all the adventuring) – a few days' thought would surely have produced even richer games? Having said that, having these two adventures on one disc is certainly excellent value

Tony Bridge

Rob the rich

Program *Robin of Sherlock* **Micro** Spectrum **Price** £7 95 **Supplier** SilverSoft Studio 7D King's Yard, Carpenters Road, London E15 2UD

Riddle What's found on Sherlock Holmes and in Sherwood Forest? Answer A deer stalker Only playing area is vast (too vast?), some illustrations are very good. The speech capability (to quiz Hurn – sic – about his alibi, etc) and sentence input disguise the *Quill* origins brilliantly, but this seems to have resulted in a less than friendly vocabulary A nice joke about how boring the forest is soon became boring itself and the repeated pictures take too long to redraw Similarly anachronistic the warped minds of Delta 4 could conceive that and then torn it into a three part adventure!

Hot on the heels of *Bored* of the *Rings*, and now under the eye, if not control of, SilverSoft, comes another sideswipe at a Melbourne House biggie plus Adventure International's outlaw, with the Wizard of Oz and Smurfs thrown in

Only this time D4 seem to have spread it too thin. The NCPs and Superloos aren't that funny unless they have a real role in the game

There's also a bonus program, a subjective guide to London which displays an unhealthy preoccupation with Bronski Beat!

But not even a mention of our own Martin Croft will persuade me that this is up to *Bored* standards

John Minson

Perspective

Program *Chimera* **Micro** Spectrum **Price** £3 95 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane London WC2H 9DL

Once we all marvelled at Ultimate's 3D techniques but today everyone gets in on the act, even at a budget price

Chimera helps launch the Super Silver range, at twice the price, but that's still half of what you'd pay for *Alien 8*

I reckon some cloning has been going on in the depths of space, because here we have a maze made up of blocks and a character who looks strangely like a cute little robot, walking along with a clicking reminiscent of a clockwork toy Here's another mission to collect objects and use them to destroy the alien craft and not yourself

Ignore these similarities though and the game's playable enough but some puzzles could make you resort to trial and error, I think

The 3D is not quite perfect – your character appears to walk on air at times – but that doesn't cause problems.

What does give grief is that some objects are out of sight behind walls, so you have to wander far and wide, with food and water running out and radiators and objects to speed the drain There's no time to lose as you keep a robotic eye open for loaves and mugs Steering is by the anti-/clockwise turn and forward technique, of which I am not fond, and here it's aggravated by the fact that your robot fails to stop on an interstellar sixpence

We've also got used to talking Spectrums by now, but this is the first game I've seen where it not only announces itself but your character dies with a blood curdling scream

I'm sure this will be a hit with all *Alien Eighters* or is that lovers?

John Minson

RHYTHM UNIT

by Ian Waugh

After experimenting with the sounds on the Amstrad, it is not difficult to produce a rhythm unit. The main problem and the one requiring the most individual attention, is to produce good drum sounds. The best drum noises need careful setting of the noise pitch and the volume envelope.

You will find that the duration of the sound plays a very important part in determining the drum characteristics and if you use more than one envelope you can produce quite a reasonable rhythm unit. This program is one way to approach the design of a rhythm generating program.

When run, the program will play a rock beat and pressing the indicated keys will alter the rhythm.

Program Notes

The program is fairly self-explanatory. Each drum is produced by a combination of parameters – pitch, volume envelope, tone envelope and noise setting – which are read into four arrays in Line 1520. The rhythms are listed in data statements at the end of the program. They are stored as a drum number followed by a duration. The number of each drum is given in the Rem statements between Lines 1580 and 1780. The rhythm patterns are terminated by two Os.

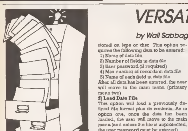
The central *While/Wend* loop between Lines 1080 and 1130 reads the drum number and its duration and plays the sound accordingly. If a new key has been pressed, Line 1080 stores this in *beat$* which is used in Lines 1130 to 1210 to restore to the correct set of rhythm data. At the end of a rhythm pattern, drum will be 0 and the program will fall through Line 1120 to these Lines.

The drum sounds and rhythms would not be out of place in an electro-music composition. Not all the drum sounds have been used in the rhythm patterns. Experiment with the original envelopes to see if you can improve on the sound and construct other drum sounds, too.

The rhythms only play one or two bars before repeating. You can add more variations by adding to the data and, of course, create more rhythms. You could add a facility to change tempo, too, set in Line 1780.

This is an edited extract from Ian Waugh's new book *Making music on the Amstrad CPC 464 and 664*, available from Sunshine Books, priced £6.95.

```
1000 REM PROGRAM 7.2
1010 REM Rhythm Unit
1020 :
1030 GOSUB 1260:REM Title Page
1040 GOSUB 1390:REM Set Up
1050 :
1060 WHILE -1
1070 READ drum,dur
1080 WHILE drum<>0
1090 com$=INKEY$:IF com$<>"" THEN beat$=c
om$
1100 SOUND 1,pitch(drum),dur*tempo,0,ev(
drum),et(drum),noise(drum)
1110 READ drum,dur
1120 WEND
1130 IF beat$="1" THEN RESTORE 1820
1140 IF beat$="2" THEN RESTORE 1840
1150 IF beat$="3" THEN RESTORE 1870
1160 IF beat$="4" THEN RESTORE 1890
1170 IF beat$="5" THEN RESTORE 1920
1180 IF beat$="6" THEN RESTORE 1940
1190 IF beat$="7" THEN RESTORE 1960
1200 IF beat$="8" THEN RESTORE 1980
1210 IF beat$="9" THEN RESTORE 2010
1220 WEND
1230 END
1240 :
1250 REM Title Page
1260 MODE 1
1270 LOCATE 9,3:PRINT "R H Y T H M   U N
 I T":PRINT
1280 PRINT " 1) Rock 1"
1290 PRINT " 2) Rock 2"
1300 PRINT " 3) Rock 3"
1310 PRINT " 4) Mexican Rock"
1320 PRINT " 5) Fill 1"
1330 PRINT " 6) Fill 2"
1340 PRINT " 7) Fill 3"
1350 PRINT " 8) Swing"
1360 PRINT " 9) Cha Cha"
1370 RETURN
1380 :
1390 REM Set Up
1400 ENV 1,1,15,2,5,-3,4
1410 ENV 2,1,15,1,15,-1,3
1420 ENV 3,1,15,1,4,-2,2,7,-1,6
1430 ENV 4,7,2,1,14,-1,4
1440 ENV 5,1,15,1,15,-1,8
1450 ENT 1,1,-100,1,5,25,3
1460 ENT -2,1,-75,1,4,25,3
1470 ENT -3,1,4,2,1,-8,2,1,4,2
1480 :
1490 DIM pitch(11),ev(11),et(11),noise(1
1)
1500 REM Store Drum Sounds
1510 FOR n=1 TO 11
1520 READ pitch(n),ev(n),et(n),noise(n)
1530 NEXT n
1540 :
1550 REM 1 Tom1
1560 DATA 270,1,2,2
1570 REM 2 Tom2
1580 DATA 340,1,2,8
1590 REM 3 Tom3
1600 DATA 390,1,2,15
1610 REM 4 Tom4
1620 DATA 440,1,2,20
1630 REM 5 Bass Drum
1640 DATA 925,1,1,31
1650 REM 6 Snare
1660 DATA 100,3,1,15
1670 REM 7 Hi Hat
1680 DATA 0,4,0,1
1690 REM 8 Cymbal
1700 DATA 16,2,0,1
1710 REM 9 Wood Block
1720 DATA 0,1,0,15
1730 REM 10 Guiro
1740 DATA 20,5,3,15
1750 REM 11 Cow Bell
1760 DATA 80,1,0,10
1770 :
1780 tempo=4:beat$="1"
1790 RETURN
1800 :
1810 REM Rock 1
1820 DATA 1,3,1,3,6,3,6,3,5,6,5,6,0,6,6,
3,0,3,5,6,5,3,0,3,0,0
1830 REM Rock 2
1840 DATA 5,6,5,6,6,6,6,3,5,6,5,6,5,3,6,
3,6,3,6,6
1850 DATA 5,6,5,6,6,6,6,3,5,6,5,6,5,3,1,
3,1,3,2,3,2,3,0,0
1860 REM Rock 3
1870 DATA 5,6,5,6,6,3,0,6,6,3,5,6,6,3,6,
3,5,3,6,3,0,3,5,3,0,0
1880 REM Mexican Rock
1890 DATA 10,10,6,12,6,6,5,6,5,6
1900 DATA 10,10,6,12,1,3,1,3,2,3,2,3,4,3
,4,3,0,0
1910 REM Fill 1
1920 DATA 5,6,5,6,6,6,5,6,5,6,6,3,6,3,1,
3,1,3,4,3,4,3,0,0
1930 REM Fill 2
1940 DATA 1,4,1,4,1,4,2,4,2,4,2,4,3,4,3,
4,3,4,4,4,4,4,4,4,0,0
1950 REM Fill 3
1960 DATA 1,3,1,3,1,3,1,3,2,3,2,3,2,3,2,
3,3,3,3,3,3,3,3,3,4,3,4,3,4,3,4,3,0,0
1970 REM Swing
1980 DATA 5,12,7,8,7,4,7,12,7,8,7,4
1990 DATA 7,12,7,8,7,4,7,12,7,8,4,4,0,0
2000 REM Cha Cha
2010 DATA 11,12,11,6,5,6,11,12,11,12
2020 DATA 11,12,11,6,0,6,11,6,11,6,11,6,
5,6,0,0
```



VERSATILE FILE

by Wail Sabbagh

This week more listing (one more to follow next week) – but first, more instructions on how to use the beast once you've got it up and running, starting with Central Menu One.

As explained last week this menu is concerned with defining or loading the data file format. It offers the following options

1) Open New Data File

This option must be selected by first time users, as there is no data file format stored on tape or disc. This option requires the following data to be entered:

1) Name of data file
2) Number of fields in data file
3) User password (if required)
4) Max number of records in data file
5) Name of each field in data file

After all data has been entered, the user will move to the main menu (primary menu two)

2) Load Data File

This option will load a previously defined file format plus its contents. As in option one, once the data has been loaded, the user will move to the main menu (and unless the file is unprotected, the user password must be entered)

The option offers the following choices:

1) View disc directory
2) Load data file from tape – with an optional choice of loading first file found without any name specified
3) Load data file from disc
4) Return to Central menu

All errors encountered will be reported on the Com File error screen, control then being returned to Central menu

The second main menu through which the program now is controlled is Primary Menu Two. This menu is concerned with the manipulation of the data file, consisting of ten options, most of which will move to their own secondary menus. This menu offers the following choices.

1) Enter Next Record

2) Read/Search Menu

This menu is concerned with locating and displaying on the VDU a required item of data in the file. This option offers the following choices.

1) Display record by number
2) Read block of file
3) Search through field, such as entering 'ca' to locate car racing, carrot or carbon.
4) Subsearch through field, such as entering 'car' to locate car racing, carrot or carbon.
4) Subsearch through field, such as bread or deep sea mining. Option three and four allow a max of 80 characters in the search field
5) Browse through file
6) Return to control menu.

3) Printer Output Menu

This menu requires a CBM printer, or a CBM printer simulator. User port interfaces can be used, but the driver software must be loaded before Com File, and Ram top lowered accordingly. This option offers the following

1) Output 1 record,
2) Output block of file
3) Output all file
4) Return To Control menu.

Options three and four offer the choice to exclude certain fields

That's all for this week. Next time, your final helping of listing, plus more instructions

```
4230 IF BI>CO OR BI<1     THEN ER$="RECORD NO OUT OF RANGE" GOTO 10000
4240 EN=BI GOTO4800
4250 PRINT"J"
4260 PRINT"  > ENTER RECORD NO TO START< "
4270 PRINT PRINT INPUT"D ";BI
4280 PRINT"   > ENTER RECORD NO TO END< "
4290 PRINT PRINT INPUT"D ";EN
4300 IF EN>CO OR EN <1  THEN ER$="RECORD NO OUT OF RANGE" GOTO 10000
4310 IF BI>CO OR BI < 1 THEN ER$="START END VALUE ILLIGAL" GOTO 10000
4320 ZZ=1 GOTO 4600
4350 PRINT"J"
4360 PRINT"  > ENTER FIELD NO TO SEARCH< "
4370 PRINT PRINT INPUT"D ";F
4380 IF F>NF OR F<1  THEN ER$="FIELD VALUE OUT OF RANGE" GOTO 10000
4390 PRINT PRINT
4400 PRINT"  > ENTER TEXT TO SEARCH FOR< "
4410 PRINT PRINT INPUT"D ";S$
4420 FORK=1TOCO
4430 IF LEFT$(A$(K,F),LEN(S$))=S$THENBI=K EN=K ZZ=2 GOTO 4600
4440 NEXTK
4450 ER$="END OF SEARCH" GOTO10000
4500 PRINT"J"
4510 PRINT"  > ENTER FIELD NO TO SEARCH< "
4520 PRINT PRINT INPUT"D ";F
4530 IF F>NF OR F<1THEN ER$="FIELD VALUE OUT OF RANGE" GOTO 10000
4540 PRINT PRINT
4550 PRINT"  > ENTER TEXT TO SEARCH FOR< "
4560 PRINT PRINT INPUT"D ";S$
4570 FORK=1TOCO
4580 FORY=1TOLEN(A$(K,F))
4590 IF MID$(A$(K,F),Y,LEN(S$))=S$THENBI=K EN=K ZZ=3 GOTO 4600
4592 NEXTY
4593 NEXTK
4595 ER$="END OF SEARCH" GOTO10000
4600 REM****DISPLAY****
4610 FORQ=BI TO EN PRINT"J" PRINT"RECORD ";Q PRINT"---------------"
4620 FORC=1TONF
4630 PRINT
4640 PRINT F$(C)" ";A$(Q,C)
4650 NEXTC
4660 IFZZ=1ORZZ=3ORZZ=4THENPRINT PRINT"> HIT A KEY FOR NEXT RECORD/MENU<
4670 IFZZ=1ORZZ=3ORZZ=4THENGETA$ IFA$=""THEN 4670
4675 IF ZZ=4 THEN 2000
4680 NEXTQ
4690 IFZZ=0THEN2000
4695 IFZZ=1THEN2000
4700 PRINT PRINT"> (M)ENU     (C)ONTINE SEARCH"
4710 GETA$ IFA$="M"THEN GOTO 2000
4720 IFA$="C"THEN4740
4730 GOTO 4710
4740 IFZZ=2THEN GOTO 4440
4750 IFZZ=3THEN GOTO 4592
```

```
4800 REM****BROWSE****
4810 PRINT"J"
4820 PRINT"  > ENTER FIELD NO TO DISPLAY< "
4830 PRINT PRINT INPUT"D ";F
4840 IF F>NF OR F<1    THEN ER$="FIELD VALUE OUT OF RANGE" GOTO 10000
4850 IF F<2 THEN ER$="KEY FIELD CHOSEN" GOTO 10000
4860 PRINT"J"
4870 PRINT" F$(1)" ";F$(F)" "
4875 PRINT"---------- ----------"
4880 FORK=1TOCO
4890 PRINT" A$(K,1)" ",A$(K,F)
4900 IFK/21=INT(K/21)THENGETA$ IFA$=""THEN 4900
4910 NEXTK
4920 ZZ=4 GOTO 4660
5000 REM****PRINTER MENU****
5010 PRINT"J"
5020 PRINT"OPTION 3"  "PRINTER MENU"
5030 PRINT"-----------------------------------"
5040 PRINT PRINT PRINT
5050 PRINT"      PLEASE SELECT CHOICE"
5060 PRINT
5070 PRINT"       1 OUTPUT 1 RECORD" PRINT
5080 PRINT"       2 OUTPUT BLOCK OF FILE" PRINT
5090 PRINT"       3 OUT PUT ALL FILE " PRINT
5100 PRINT"       4 RETURN TO CONTROL MENU " PRINT
5110 GET A$
5120 IF A$<"1" OR A$>"4" THEN 5110
5130 A=VAL(A$)
5140 ON A GOTO 5200 5300 5400 2000
5200 PRINT"J"
5210 PRINT"  > ENTER RECORD NO TO PRINT< "
5220 PRINT PRINT INPUT"D ";BI
5230 IF BI>CO OR BI <1   THEN ER$="RECORD NO OUT OF RANGE" GOTO 10000
5240 EN=BI FORK=1TONF EX(K)=0 NEXT GOTO5600
5300 PRINT"J"
5310 PRINT"  > ENTER RECORD NO TO START< "
5320 PRINT PRINT INPUT"D ";BI
5330 PRINT"   > ENTER RECORD NO TO END< "
5340 PRINT PRINT INPUT"D ";EN
5350 IF EN>CO THEN ER$="RECORD NO OUT OF RANGE" GOTO 10000
5360 IF BI>EN OR BI < 1 THEN ER$="START END VALUE ILLIGAL" GOTO 10000
5370 GOTO 5420
5400 REM
5410 BI=1 EN=CO
5420 PRINT"  > EXCLUDE ANY FIELDS (Y/N)< "
5430 GETA$ IFA$="N"THENFORK=1TONF EX(K)=0 NEXT GOTO 5500
5440 IF A$="Y"THEN5470
5450 GOTO 5430
5470 PRINT"J"
5480 SX=1
5490 PRINT"J      EXCLUDE FIELDS"
5500 PRINT"
```

```
5510 PRINT
5520 FOR X=1TONF EX(X)=0
5530 PRINT "J
5540 PRINT"DO YOU WANT TO EXCLUDE FIELDS  /
5550 PRINT PRINT PRINT"FIELD  X " IS CALLED ";F$(X)
5560 PRINT PRINT PRINT"HIT Y/N"
5562 GET A$ IF A$="N"THEN GOTO 5575
5565 IF A$="Y"THEN EX(X)=1 GOTO 5575
5570 GOTO 5565
5575 NEXTX
5580 PRINT"J"
5581 PRINT"    FILE HEADER   (Y/N)"
5582 GETA$ IFA$="N"THEN  GOTO 5600
5583 IF A$="Y"THEN5585
5584 GOTO 5582
5585 PRINT"ENTER HEADER (MAX 40 CHRS)" PRINT INPUT">_" H$ IFLEN(H$)
     >40THEN5585
5590 OPEN4 4 PRINT#4,CHR$(14);H$ A$="" FORX=1TOLEN(H$) A$=A$+"-" NEXT
5595 PRINT#4 CHR$(14) A$ PRINT#4 PRINT#4 CLOSE4
5600 PRINT"PRINTING TO PRINTER  HIT X TO EXIT" OPEN4 4
5610 FOR X=1TOEN
5620 FOR Y=1TONF
5630 IF EX(Y)=0 THEN PRINT#4 "F$(Y)"=" R$(X,Y)
5640 NEXTY
5650 PRINT#4 CHR$(14 "-----------------------------"
5660 PRINT#4 GETA$ IFA$="X"THENX=CO
5670 NEXTX CLOSE4 GOTO 2000
6000 PRINT"THIS OPTION OVER WRITE ALL PRESENT DATA"
6010 PRINT PRINT PRINT
6020 PRINT"ARE YOU SURE  (Y/N)"
6030 GETB$ IFB$=""THEN 6030
6040 IF B$="Y"THEN RUN
6050 GOTO 2000
7000 REM*****SORT FILE*****
7010 PRINT "J
7020 PRINT"  ENTER FIELD TO SORT UPON  "
7030 PRINT PRINT INPUT">_" F
7040 IF F>NF OR F<1 THEN ER$="FIELD VALUE OUT OF RANGE" GOTO 19000
7050 IT=CO+1
7060 FOR I=1T 1TO1STEP 1
7070 PRINT"COUNT DOWN  " I
7080 NN=0
7090 FORJ=1TOI
7100 IFR$(J F)>R$(NN F)THEN NN=J
7110 NEXTJ
7120 FOR X=1TONF E$(X)=R$(I X)
7130 R$(I,X)=R$(NN X) R$(NN X)=E$(X)
7140 NEXT NEXT I
7150 GOTO 2000
8000 REM *****SAVE*****
8050 PRINT"JOPTION  "  "SAVE DATA"
8060 PRINT"-----------------------------"
8030 PRINT PRINT
8040 PRINT"     PLEASE SELECT CHOICE"
8050 PRINT
8070 PRINT"      1  FORMAT NEW DISK" PRINT
8080 PRINT"      2  VALIDATE DISK" PRINT
8090 PRINT"      3  VEW DISK DIRECTORY" PRINT
8100 PRINT"      ---------------   PRINT
8110 PRINT"      4  SAVE FILE TO DISK  PRINT
8120 PRINT"      5  SAVE FILE TO TAPE  PRINT
8130 PRINT"      6  RETURN TO CONTROL MENU"
8135 PRINT  PRINT PRINT"ALL OPTIONS ASSUME DISK/TAPE I
8140 GET A$ IFA$<"1"ORA$>"6" THEN 8140
8150 A=VAL(A$) ON A GOTO 8200 8300 8400 8600 8700 2000
8200 REM*FORMAT*
8210 PRINT"J"
8220 PRINT"  ENTER NAME OF DISK  "
8230 PRINT PRINT INPUT">_" I$
8240 IFLEN(I$)>14THEN ER$="DISK NAME TOO LARGE " GOTO 19000
8250 N$="N0 "+I$+" 01"
8260 PRINT PRINT"ARE YOU SURE (Y/N)"
8270 GET B$ IFB$="" THEN 8270
8280 IF B$<>"Y"THEN 8000
8290 OPEN1 8 15 N$ CLOSE1 GOSUB 61000 GOTO 8000
8300 REM*VALIDATE*
8310 PRINT"VALIDATING DISK  PLEASE WAIT
8320 N$="V" OPEN1 8 15 N$ CLOSE1 GOSUB 61000 GOTO 8000
8400 GOSUB 60000 GOTO 8000
8600 OPEN1 8 5 "I0" CLOSE1 GOSUB 61000
8610 OPEN 2,8 2,"0 "+H$+" S W"
8620 SY=0
8630 GOTO 8250
8700 PRINT"J" OPEN 2,1 1 H$ SY=1
8750 PRINT#2 NF
8760 PRINT#2 F$
8770 PRINT#2 RE
8780 PRINT#2 IF
8790 PRINT#2 CO
8795 FOR X=1TONF PRINT#2 F$(X) NEXT
8800 FOR X=1TOCO
8810 PRINT"SAVING RECORD ";X
8820 FORY=1TONF
8830 PRINT#2 R$(X Y)
8840 NEXTY X CLOSE2
8850 IFSY=0THEN GOSUB 61000
8900 GOTO 2000
9000 PRINT"THIS OPTION OVER WRITE ALL PRESENT DATA"
9010 PRINT PRINT PRINT
9020 PRINT"ARE YOU SURE  (Y/N)"
9030 GETB$ IFB$=""THEN 9030
9040 IF B$="Y"THEN PRINT"CBM BASIC V2  PROGRAM STILL IN MEMORY" END
9050 GOTO 2000
10000 PRINT"J"
10010 PRINT" -----------------"
10020 PRINT"  CBM FILE LATOR SCREEN"
10030 PRINT" -----------------"
10040 PRINT PRINT
10050 PRINT"ERROR NAME"
10060 PRINT"----------"
```


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MUSIC COMPOSER

by Cy Noble

In the listing you will see three provisional addresses for tunes, which are suitable for disc users Cassette users can use them also but more memory is available if you take them down to *&E00* Type
*INFO * * *Return* (disc users)
*OPT 1,2(RETURN) *CAT(RETURN)
Press PLAY (Cassette users)
This will give you information on the lengths of files, etc so you can pack your tunes in Adjust *tune2adr* at tune1adr + length of tune etc

After running the assembler program, if the checksum is wrong the program is ended and you are asked to check your listing If it is okay you are asked if you want to save the machine code

All the addresses needed for reference are printed on screen and you are advised to keep a note of them for use with the machine code later You are then given the option of loading and playing a tune

To use the machine code at some later time do as follows
1) **Run* (filename of machine code)
2) **Load* (tune data file) at tune1adr (RETURN)
3) **Load* (more tunes) at tune2adr, tune3adr etc
4) **Load* (envelope file) 8C0
Now any of the tunes can be played thus
5) *?&switch = x* (x = tune number)
6) *Call & changetune*
Note *Break* does not destroy the routine Steps five and six will get it going again From a machine code program of your own try the following code
LDA £x:STA switch JSR changetune

The 'changetune' routine immediately stops the music playing and starts playing the new tune selected

It wouldn't be difficult to add more tunes, just duplicate the *'music3'* routine which goes from line 2200 to 2250, using 'music(x) *Between* lines 2250 and 2260 Then expand the part of changetune which selects which tune address will be put into the working variable *'tuneadr'*

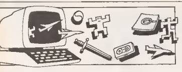
After CMP £3 BEQ music3 at line 1890 put *1891* CMP £(x) BEQ music(x) *1892* CMP £(x) BEQ music(x) etc. Don't lose line 1900(BNE finish) as it is an error trap If you do any of the above you can renumber the program afterwards

Finally, I've given you a checksum (32658) If your assembler is exactly as written you should get that number If not there is a mistake somewhere

When it is fully debugged you can start changing addresses for tunes and machine code, etc You will get a different checksum (so make the appropriate change in line 240 where it is checked) then, but provided you don't do anything silly it will still work

The whole suite of programs can be obtained from me at £10 for cassettes, £11 50 for five inch discs or £15 for three inch Write to me at 323 North Circular Rd, London N13

```
4190
1200 oswword      \ Increase the count
1210INC notecount \ then set up the
1220LDX bufadr    \ the osword
1230LDY bufadr+1  \ routine
1240LDA #7        \ to do its
1250JSR osword    \ thing
1260LDA tuneadr   \ Now we increase
1270CLC           \ the pointers to
1280ADC#4         \ point to
1290STA tuneadr   \ the next note
1300BCC jmp       \ in the tune data
1310INC tuneadr+1 \ table then
1320 jmp          \ expand the data put
1330JSR expand    \ it in our buffer &
1340JMP checkbuffer \ go check again
1350 expand       \ This routine takes
1360LDY#0         \ the current 4 bytes
1370LDX#0         \ expands them to
1380 exol         \ 8 bytes & puts them
1390LDA (tuneadr),Y \ in our buffer
1400AND#&F0       \ where osword will
1410BEQ nex       \ find them in the
1420LSRA          \ form expected
1430LSRA          \ The first byte is the
1440LSRA          \ tricky one as it was
1450LSRA          \ originally 2 bytes
1460.nex          \ This byte is split
1470STA buffer+1,Y \ into two four
1480LDA (tuneadr),Y \ bit numbers &
1490AND #&F       \ expanded to the
1500STA buffer,X  \ original byte
1510INY           \ but the other three
1520INX           \ only need a zero
1530INX
1540 exp2
1550LDA (tuneadr),Y
1560STA buffer,X
1570INX
1580LDA#0         \ stuck in the most
1590STA buffer,X
1600INX           \ significant byte of
1610INY           \ each pair until
1620CPX#8         \ eight bytes are in
1630BNE exp2      \ our buffer then
1640RTS           \ return
1650:
1660 changetune   \ This routine will
1670LDA #13       \ disable the
1680LDX #4        \ event then
1690JSR osbyte
1700LDA #21
1710LDX #4
1720 flush JSR osbyte
1730INX           \ flush all the
1740CPX #8        \ OS sound buffers
1750BCC flush
1760DEX
1770LDA#0
1780 flushbuffer
1790STA buffer,X  \ as well as our
1800DEX           \ own private one
1810BPL flushbuffer
1820LDA switch    \ Now check to see
1830BEQ finish    \ which tune is to
1840CMP #1        \ be played and
1850BEQ music1    \ exit if switch
1860CMP #2        \ is zero or set
1870BEQ music2    \ up pointers in
1880CMP #3        \ music1 music2
1890BEQ music3    \ etc
1900BNE finish    \ Switch soon trap
1910.music1       \ Put data table
1920LDA #tune1adr MOD256
1930STA tuneadr   \ addresses
1940LDA #tune1adr DIV256
1950STA tuneadr+1 \ into pointers
1960:
1970 dunchange    \ Music1 music2 etc
1980LDY #0        \ all come back to
1990STY notecount \ here so that we
2000LDA (tuneadr),Y \ can set up the
2010STA howmany   \ new note count
2020LDA tuneadr   \ and keep a copy
2030STA tempadr   \ of the address
2040LDA tuneadr+1 \ pointers for when
2050STA tempadr+1 \ we need to reset
2060INC tuneadr   \ the working ones
2070JSR expand    \ Prepare our buffer
2080LDA #14       \ Now enable the
2090LDX #4        \ event again so the
2100JSR osbyte    \ music will play
2110 finish
2120RTS   \ and go back where
2130:             \ called from
2140 music2
2150LDA #tune2adr MOD256
2160STA tuneadr
2170LDA #tune2adr DIV256
2180STA tuneadr+1
2190BNE dunchange
2200 music3
2210LDA #tune3adr MOD256
2220STA tuneadr
2230LDA #tune3adr DIV256
2240STA tuneadr+1
2250BNE dunchange
2260 buffer
2270NOP:NOP
2280NOP:NOP
2290NOP:NOP
2300NOP:NOP
2310:
2320 notecount
2330NOP       \ addresses we
2340 howmany
2350NOP       \ use to store
2360 tempadr
2370NOP       \ variables
2380NOP
2390 switch
2400NOP       \ Note tempadr
2410RTS      \ is two bytes
2420 setup
2430SEI
2440LDA &230      \ Intercept event
2450STA &230      \ vector and store it
2460LDA &221      \ in spare vector
2470STA &231      \ address then
2480LDA #event MOD 256
2490STA &220      \ redirect it to our
2500LDA #event DIV 256
2510STA &221      \ routine
2520LDA #buffer MOD256
2530STA bufadr
2540LDA #buffer DIV256
2550STA bufadr+1
2560LDA #0        \ This will disable
2570STA switch    \ events until we
2580JSR changetune \ are ready
2590CLI
2600 endcode:RTS
2610]
2620NEXT
2630ENDPROC
2640:
2650DEFPROCquery
2660PRINT "Okay ? (Y/N)"
2670REPEAT
2680C%=INSTR("NnYy",GET$)
2690UNTILC%>0
2700ENDPROC
2710:
2720DEFPROCcassette(C$)
2730MOTOR 1
2740PRINT"Insert disc/cassette & press "CHR$134;C$
2750PRINT "(cassette motor on if rewind required)"
2760ENDPROC
2770DEFFNchecksum
2780check=0
2790FORA%=interupt TO endcode
2800check=check+?A%
2810NEXT
2820checksum=check
2830=checksum
```





WILBUR

by T A Bartley

This week, Popular proudly present you with the adventures of Wilbur – a commercial quality, 100% machine code game with a difference ... you have to type it in before you play it.

Every week from now 'till Christmas, we will be printing a loader, checksum and memory dump ... at the end of which you will have 30 screens of arcade action, as you can see from the screen dump. The game itself includes full instructions and can be played via joystick or keyboard.

For this week, type in the loader program and enter the data as prompted – at the end of the session, if the 'Data OK' message appears, save the code with Save "wilbur" Code 38400, 2850.

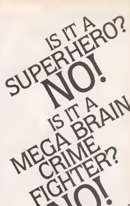
If you don't feel up to all that typing (20K of code) copies can be obtained from the author. Send £1.50 to T A Bratley, 81 Beverley Crescent, Grimsby, South Humberside, DN32 9TJ.

```
1010 POKE 23609,50
1020 LET T=0: FOR N=38400 TO 41247
1030 PRINT "TYPE NEXT NUMBER ": INPUT J: PRINT
 N,J: POKE N,J: LET T=T+J: NEXT N
1040 IF T<>289437 THEN PRINT "DATA ERROR -
CHECK LISTING"
1050 IF T=289437 THEN PRINT "DATA OK"
```

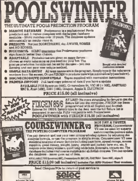
[illegible]



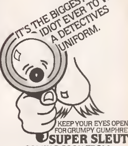
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KEEP YOUR EYES OPEN FOR GRUMPY GUMPHREY
SUPER SLEUTH
COMING SOON FROM ......
Gremlin Graphics



RANDOM WORDS

by Richard Hoptroff

The ravenous poet didn't like being hairy when their coffee percolator crucified the massive glass of water but the kitten suddenly searched in vain for a brick. Then, the bolt of lightning stole the three-legged parrot but Mrs Thatcher frantically smelled the electronic kitchen sink. He crusted the glass of water. A primeval lump slowly hit it with the stupid, red striped poet – but then, why not?

Back to reality

Like the Infinite Number of Monkeys theory, if a computer was made to print out an awful lot of random letters, it would eventually produce the script for Shakespeare's *Hamlet*. This is an adaptation of such a program that churns out very long, random stories. They lack a plot, perhaps, but often turn out to be very, very funny.

Next week, the program notes plus the remainder of the listing.

```
10 Ltn=34:Gnn=16:anf=0:qtf=0:Two=1:phf=0
15 RANDOMISE
20 RESTORE
40 NCj=8:NSj=7:NPs=8:NNb=2:NNn=52:NVb=43:NAj=46:NCm=5:NAv=8:NQt=1
5:Nph=7:Nwy=4
60 DIM cj$(NCj,16),Sj$(NSj,30),Ps$(NPs,12),Nb$(NNb,6),Nn$(NNn,44)
,Vb$(NVb,44),Aj$(NAj,42),Cm$(NCm,20),Av$(NAv,30),Qt$(NQt,60),Ph$(
Nph,54),Wy$(Nwy,64)
80 FOR n=0 TO NCj:READ cj$(n)
100 FOR n=0 TO NSj:READ Sj$(n)
120 FOR n=0 TO NPs:READ Ps$(n)
140 FOR n=0 TO NNb:READ Nb$(n)
160 FOR n=0 TO NNn:READ Nn$(n)
180 FOR n=0 TO NVb:READ Vb$(n)
200 FOR n=0 TO NAj:READ Aj$(n)
220 FOR n=0 TO NCm:READ Cm$(n)
230 FOR n=0 TO NAv:READ Av$(n)
240 FOR n=0 TO NQt:READ Qt$(n)
250 FOR n=0 TO Nph:READ Ph$(n)
251 FOR n=0 TO Nwy:READ Wy$(n)
260 Ttle$="Sargon the Demented"
280 REMark CLOSE #1:OPEN #1,scr
300 WIDTH 80
500 REPeat Paragraph
520 Snt=RND(10)+RND(10)
540 Sentence :IF INKEY$(0)<>"" :EXIT Paragraph
570 END REPeat Paragraph
580 DEFine PROCedure Sentance
600 Cpf=1:cjf=0
610 IF RND(6)=0:GO TO 740
620 IF RND(5)=1:Comment:Cpf=0
640 Two=1:Noun:Cpf=0
660 Verb
680 IF Two=2:Noun
700 IF cjf=1:cjf=0:GO TO 640
710 phf=0:qtf=0:IF RND(10)=3:qtf=1:GO TO 721
720 RETurn
721 Tp=RND(NQt):qtf=1:Tmp$='"' & Qt$(Tp):IF Tp>Gnn:Tmp$=Tmp$ & '"
,':PRINT 'Tmp$' :GO TO 729
722 IF Tmp$((LEN(Tmp$)-1) TO)=' a':Tmp$=Tmp$(1 TO (LEN(Tmp$)-2)):
anf=1
723 PRINT 'Tmp$'
725 Two=1:qtf=1:Noun
729 Two=1:qtf=0:Noun:PRINT '"said to"':Two=2:Noun
730 IF cjf=1:cjf=0:GO TO 640
735 RETurn
740 Cpf=2:Two=1:phf=1:Noun
750 PRINT 'Ph$(RND(Nph))':IF RND(9)=5:PRINT '"a bit"':GO TO 760
755 IF RND(8)=4:PRINT '"half"'
760 Finish:Tmp$=Aj$(RND(NAj)) & fin$:PRINT 'Tmp$'
770 IF cjf=1:cjf=0:GO TO 640
780 END DEFine
790 DEFine PROCedure Comment
800 Caps(Cm$(RND(NCm))):ans$=ans$ & ',':PRINT 'ans$'
820 END DEFine
840 DEFine PROCedure Noun
845 IF qtf=1:GO TO 970
850 IF Two=2 OR phf=1:GO TO 880
857 IF RND(1 TO 12)>10:PRINT 'Ttle$':RETurn
860 IF RND(5)<3 :Caps(Sj$(RND(NSj))):PRINT 'ans$':RETurn
880 IF RND(6)<6:Numb:GO TO 970
900 IF RND(5)<4
920 Numb:Tmp$=Nn$(RND(NNn)) & "'s":An(Tmp$)
940 ELSE Caps(Ps$(RND(NPs))):PRINT 'ans$'
960 END IF
970 IF RND(5)>2 :GO TO 1065
980 REPeat Adj
1000 Tmp$=Aj$(RND(NAj))
1020 IF RND(10)>1:An(Tmp$) :EXIT Adj
1040 Tmp$=Tmp$ & ",":An(Tmp$)
1060 END REPeat Adj
1065 IF qtf=1:Tmp$=Nn$(RND(NNn)) & ".",':An(Tmp$):RETurn
1070 IF Two=2:Finish:Tmp$=Nn$(RND(NNn)) & fin$:An(Tmp$):RETurn
1080 An(Nn$(RND(NNn)))
1100 END DEFine
1110 DEFine PROCedure Verb
1120 IF RND(5)>2 :PRINT 'Av$(RND(NAv))'
1130 Two=2:Tp=RND(NVb):IF Tp>Ltn :Finish:Two=1:Tmp$=Vb$(Tp) & fin
$:PRINT 'Tmp$':RETurn
1140 PRINT 'Vb$(Tp)'
1150 END DEFine
1160 DEFine PROCedure Finish
1170 IF RND(35)=1:fin$=' ':RETurn
1175 cjf=1
1180 IF RND(44)=1:fin$="i":RETurn
1190 IF RND(43)=1:fin$=' ':RETurn
1200 IF RND(3)=1:fin$=' ' & cj$(RND(NCj)):RETurn
1205 cjf=0:IF RND(10)=7 :fin$=Wy$(RND(Nwy)):RETurn
```

Name: Roy Carter

Chief programmer for Gargoyle Games

I began in 1970 as a programmer working for a business firm on the ICL 1901 – it was called a mainframe because it had six K. I learnt programming via night classes, studying Fortran at Dudley Tech then I started to use Plan – that was the first Assembly language I worked with and really it was the basis of all my other programming Assembly languages are all pretty much the same except for matters of detail

I write all the programs for Gargoyle on CP/M machines using the Microsoft M80 Assembler, I'm also impressed with Prospero Pascal which I'll start using for programming if it becomes practical

There are other programmers I admire, no particular names though, I like much of what Ultimate's done until the more recent stuff and Denton Designs has been consistently good. Really it's not a case of technical cleverness so much as good ideas – there are any number of programming teams who could have written, in a purely coding sense, games like *Knight Lore*, but it took Ultimate to come up with the ideas

In my own programming I think the biggest achievement so far has been to move large animated objects around smoothly and at speed I don't think anyone has equalled the animation of *Tir Na Nog* yet. My greatest programming challenge involves artifical intelligence and expert systems It's a subject that has interested me for ages and I've been to a number of seminars on the subject of AI.

I'd like to create program so realistic it would be like talking to a real persco

NAME: Roy Carter

AGE: 32

FAVOURITE GAMES:
Pacman
Sorcery (Virgin's Amstrad version)
Knight Lore
I liked the original *Game of Life* as well

FAVOURITE MACHINES:
I'd say the Spectrum for games. For those people who want to do some programming (and most never do) I'd rate the Amstrad highly.

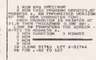
SOFTOGRAPHY:
Ad Astra, *Tir Na Nog*, *Dun Darach*, *Marsport*, *Sweve's World* and a whole load of business programs.

HOBBIES:
I read a lot mainly Science Fiction, particularly Jeff Vance, Asimov, Poul Anderson and Piers Anthony, I've also been reading quite a bit of Agatha Christie recently, although I'd rather you didn't mention that.

Character Set on Spectrum

by G Wearmouth

This program is short, but interesting. It takes about one minute to design a character font based on the Spectrum's original, but thicker. The listing was made after the program was run, and I think you'll agree it's very legible.



```
   1 REM any SPECTRUM
   2 REM THIS PROGRAM CREATES,AT
ADDRESS a, AN EMPHASISED VERSION
OF THE  ROM CHARACTER FONT.
  EACH CHARACTER IS PRINTED AT
21,0 THEN THICKENED (LINE 80).
  LINE 80 TRANSFERS THE SCREEN -
BYTES TO ADDRESS a.
   3 REM DURATION   1 MINUTE
   5 REM
   7 REM ____________________
   8 REM
  10 CLEAR 31743  LET a=31744
  20 FOR i=32 TO 127
  30 PRINT AT 21,0,CHR$ i
  40 FOR y=7 TO 0 STEP -1
  50 FOR x=6 TO 0 STEP -1
  60 IF POINT (x,y) THEN PLOT x+
1,y
  70 NEXT x
  80 POKE a,PEEK (22432-256*y)
  90 LET a=a+1
 100 NEXT y
 110 NEXT i
 120 POKE 23607,123
 130 BORDER 1  PAPER 1  INK 6  C
LS
 140 LIST
```

```
10 ' ********************************
20 ' Three Dimensional Sine Wave.
30 '
40 ' Written By M.J.Evans. for PCW.
50 '
60 ' ********************************
70 '
80 DEFINT x,y,s,w
90 CLEAR:DIM t(640):CLS:MODE 1:INK 1,26:PEN 1:PAPER 0:INK 2,80:INK 3,6:INK 0,0:B
ORDER 0:MODE 1:INPUT "Mode (1 or 2)";mo
100 IF mo=1 OR mo=2 THEN MODE mo:GOTO 110
110 INPUT "Sine Addition (0-360) (45) ",s
120 INPUT "Size of humps (50)",w:INPUT "Amount of humps (2):";d:d=((2*PI/15)/2
130 INPUT "Horizontal Step (.05):",st:INPUT "Back Step (.5):",b:CLS:n=0
130 FOR n=0 TO 15 STEP b:n1=n*d n1=n*10 n2=n*20
140 FOR m=0 TO 15 STEP st:y=SIN(m*d+s)*SIN(n*d+s)*w+m*10+n1
150 q=320+n2-m*20:x=320-n2+m*20.IF y>t(x) THEN PLOT x,y PLOT q,y:t(x)=y
160 NEXT m,n
170 ENT -1,10,-10,1,1,100,1
180 SOUND 2,100,32767,15,,1
```

3D Sine Wave on Amstrad

by Martin Evans

This program will plot on the screen a 3D sine wave. Suggested values for inputs have been entered as brackets, although other values may be chosen. The first input of interest is the Sine Addition. This will determine where along the sine wave to start plotting. The size of hump relates to its amplitude. The hump input applies to both halves of the wave.

Shadow Graphics on BBC

by T Richardson

This is a simple shadow graphics routine which can be incorporated in almost any program in basic. It is useful to give a 3D-title effect, and is very short.

Structure

0-110 Demo
130 Joins cursors
140-160 Select first colour moves and prints text
170-190 Select second colour moves X + dis Y + dis then prints the text
200 Separates text and graphics cursors

```
10MODE2
20 REM ****************************
30 REM *** SHADOW GRAPHICS      ***
40 REM *** (C)copyright 1985    ***
50 REM *** by T.N.RICHARDSON    ***
60 REM ****************************
70 VDU23 8202;0;0;0;0
80PROCshadow("SHADOW GRAPHICS",100,1000,1,1,6)
90PROCshadow("(C)copyright 1985",100,900,7,1,6)
100PROCshadow("by T.N RICHARDSON",100,800,5,3,6)
110 PROCshadow("WRITE T",100,700,4,7,6)
120PROCshadow("COL1=5 GROUND COL",100,650,4,7,6)
130PROCshadow("COL2=F GROUND COL",100,600,4,7,6)
140PROCshadow("...",100,550,4,7,6)
150PROCshadow("X,Y=GRAPHICS POS",100,500,4,7,6)
160 END
170DEF PROCshadow(A$,X,Y,COL1,COL2,DIS)
180VDU5
190MOVE X,Y
200GCOL0,COL1
210PRINTA$
220MOVE X-DIS,Y+DIS
230GCOL0,COL2
240PRINTA$
250VDU4
260ENDPROC
```

```
SPRITE CHECKING FOR COLLISIONS

10 CODE:
        IN A,(2)
        BIT 5,A      ;CHECK FOR
        JR NZ,YES    ;COLLISION
        SUB A        ;LET A=0
        JP END
  YES:  LD A,255
  END:  LD (60000),A
        RET

SYMBOLS:
```

Collision Detect on Memotech

by Martin Joyce

The program works by checking the appropriate bit of the Status Register from the VDP (Video Display Processor).

It is relocatable anywhere in memory and should be entered into your own program using the Memotech's built-in Assembler. If the program is entered into, say, Line 10 of your program, the next line should read. *If Peek (60000)= 255 Then Goto X* where X is the line number the program to if two or more sprites collide.

It may be necessary to change the address 60000 to another suitable address if the program corrupts one byte of the VRAM (Video Ram).

TOUCH PAD SCREEN ARTIST

SCREEN ARTIST

Cumana's new, improved Touch Pad with Screen Artist forms the perfect combination of state of the art technology and human creativity – an easy to use graphics plotting aid with a brand new and powerful software library with new titles being added on a regular basis

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SCREEN ARTIST (DRAWING COMMANDS)

Swap Colours
Change

Dot

Line Solid

Dotted and

Functions

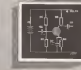
existing
with
Inverse and multi
all them
in your
masterpieces

and load routines for

text size with
function and shadow

routine dump
images
Epson-compatible







The name in
GU3 3BH. Telephone:

Public domain

Chris Wood of Chameleon Software has written a justifiably cross letter to say that Nicholas Mew's Amstrad *Jet Set Willy* program in issue 41 was plagarised from a routine he wrote for *Amstrad User* This has been confirmed by a letter from 'Illegible' of Leeds who points out that the routine doesn't work in exactly the same way that the one in AU doesn't.

Apologies to Chris Wood and all at AU for this

It is difficult to claim 'ownership' of things such as pokes and hints which are really public domain, but what is inexcuseable is that an entire program such as Chris's, which has had hours of work put into it, is ripped off in this way

Ill-fated

As for the fact of it not working, the routine arrived just in time to get squeezed into our *JSW* week and since it came as a listing on tape it was just printed out into the column Can you imagine someone going to the trouble of typing a program out from a magazine, changing the copyright names, etc, and not even trying to see if it works! If anyone else has such a routine handy, do me a favour and send it to someone else

For 'illegible' of Leeds who complains that he is still looking for an Amstrad *JSW* routine that works, can I remind you that we printed one weeks before Nicholas's ill-fated letter arrived Check your back issues

The Spectrum version of *JSW 2* pokes, issue 41, are also ill-fated in that there was a typo – the first number co line 70 should be 221 rather than 211 *Randomize Usr* 28672 to start.

One thing that has been printed in other magazines is the following tip for *Graham Gooch's Test Cricket* on the 64, but Audiogenic specifically asked that we try and spread it to as many people as possible

On the ropes

It is a routine to let you save a team you have created to tape or disc Load and run the *Select* program and enter the teams. At the end when you are returned to Basic, *Poke 43,0 Poke 44, 192 Poke 45 40 Poke 46,194 Poke 56,200, CLR Save "TEAMS"* (add ",8" if using disc) When saved turn the computer off and on again. Enter *Load "TEAMS",1,* or *Load "TEAMS",8,1* When the teams have loaded type *New* and load the main game.

Gyroscope new from Melbourne House

Congratulations to Damian Craddock for finishing *Barry McGuigan's Boxing* His tip is to make your boxer a bulldog which traps the other fighter on the ropes giving you free pot shots at his head. If he covers up, hit his body Anyone who wants tips on other C64 games, especially *Spy v Spy II, Beach Head, Raid, Hunchback, Matrix,* can write to Damian at 8 Tennyson Road Bedford, MK40 35B (enclose an SAE)

Congratulations to Brian Thompson of Beckenham for finishing *Hacker;* here are a few tips – Switzerland needs cash, England needs camera, Greece needs 'Tut', Egypt needs chronometer, India needs emerald scarab That's all for now in case we spoil the game Very careful mapping is essential as the unit cursor disappears towards the end

By the way, the location of the test site is $%£&%$'&) ('n——)'— system malfunction! Logoff complete. Oh well, perhaps next week

Hacker from Activision

Actually *Hacker* is a disappointment, only a little way into the game it loses almost all resemblance to what it is supposed to be, ie, an unknown computer system The older game, *System 15000* was much better in that sense Let's have some comments and tips please, it should be just the thing for readers of this column

Brian has also scored 45% on *Marsport* tips badly needed! Gargoyle are releasing their brilliant games at a much faster rate than we can solve the things

Unique quality

Incidentally can anyone help on the new Sandy White game, *I of the Mask?* In case you haven't seen it it has the most fantastic graphics to date on the Spectrum, of a unique and atmospheric quality that puts the author firmly into the top league of Spectrum programmers However, the general opinion seems

need are some really useful tips to get people started

Dominic Wake of Farnham finished *Starquake* on November 3rd with 225,395 and 52% and with a surplus of 20 lives Here are some teleport names to start you off Verox, Ramix, Kysia, Delta, Soniq, Ultra, Amiga. As for the one near the cave, there is a clue in the gem itself Dominic recommends *Starquake*, but says it is too expensive

Kevin Young, writing about the Amstrad version of *Exploding Fist,* also complains about paying a "ridiculous £9.95" Kevin took his game back to Smiths, disgusted by the lack of music or changing backdrops on this version.

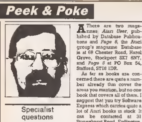
Renaissance

My own feeling is that the games are pricey, but I am particularly impressed by the recent renaissance of Melbourne House arcade games and I rate *Starion, Fist* and *Gyroscope* among the few releases that are really worth the money However, I do agree that the poor deal Amstrad owners got deserves plenty of complaining letters. It's still a brilliant game and we will try and find room for some tips soon.

Finally good new has just come in from Chris Allen who has managed to write a compact routine for getting infinite lives in *Fairlight* (you may remember it has one of the most convoluted loaders ever seen) Don't miss next week's issue for a copy of this! The other good news is that Mr A G Soloman of Bridgend has finished *Fairlight* and has sent in the complete solution, which I hope we will find space to print soon

Tony Kendle

Peek & Poke



Specialist questions

Simon James of Boston, Lincs, writes.

Q **I would be grateful if you could answer two questions concerning the Atari XL series. Firstly, do you know of any specialist Atari magazines? Secondly, are there any books giving details of the operating system, system variables, how to use the sound and graphics chips from machine code, etc, for the Atari 800XL?**

A There are two magazines *Atari User*, published by Database Publications and *Page 6*, the Atari group's magazine. Database is at 68 Chester Road, Hazel Grove, Stockport SK7 5NY, and *Page 6* at PO Box 54, Stafford, ST16 1DR.

As far as books are concerned there are quite a number already that cover the areas you mention, but no one book that covers all of them. I suggest that you try Software Express which carries quite a lot of Atari books in stock. It can be contacted at 31 Stoneyhurst Road Erdington, Birmingham B24 8HA

Upgraded Spectrum

Richard Gompels of Cobham, Surrey, writes

Q **I own a ZX Spectrum with a light pen, interface 2 printer, joystick etc, and wish to upgrade. I do not wish to exceed the £500 mark. Can you help me decide? Please answer this letter; it is the fourth time I've written!**

A Well, I suppose I should start by saying upgrade for what reason? If you feel that you have outgrown the Spectrum and want to *get* down to more serious 'business type' programming that is one thing, but if you simply want some hardware to add to your existing system then that is quite another.

Taking the new machine angle first . . there is no real upgrade path for the Spectrum yet, no compatible bigger, faster machine is available. So whatever you buy, your existing software will not be transferable. I must confess that I like the idea behind the new mini-disc Amstrad which is well within your price range and will develop into the first of a family of machines, which is what I think you want.

The second possibility is to simply add further to your Spectrum. You might try microdrives or a wafadrive, perhaps an RS232 interface and modem

Elegant solution

Knud Thomsen Samsogade 83, 8000 Aarhus C, Denmark, writes

Q **With reference to your answer to a reader from Ludlow in Vol 4 No 15, I would like to point out that the 'Bin' problem can be circumvented as follows:**

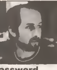
```
10 Input a
20 Print Val (Chr$ 196 – Str$ a)
30 Goto 10
```

The variable a is first converted by Str$, since Bin only works on explicit numbers.

A I have received a number of letters pointing out elegant ways of solving this problem (converting decimal to Binary).

Most of the letters also criticise the answer I gave for being 'contrived'. I would only say in my defence that I never claim that my answers are the best solution, only that they work!

Tony Bridge's Adventure Corner



Password

One of the best-selling *Quill'd* adventures, and deservedly so, is *Bored of the Rings* out of Silversoft by Delta 4. It is not particularly tough or brainteasing, although of course the program will give you plenty to think about – but, like other Delta 4 adventures, the scenario is well-written and consistently witty.

Those of you who have enjoyed *Bored* should also take a look at the earlier programs from this company, *Quest for the Holy Joystick* and the sequel *Return of the Holy Joystick*, two brilliant examples of how far *The Quill* can be stretched. The latest adventure is *Robin of Sherlock*, released as you read these words.

The reason for me mentioning *Bored* now is to offer some help. Soon after my review of the game, back in May of this year, I mentioned a reader who was stuck near the start and asking for a clue. This was only a few moves into the adventure, and actually one of the very first problems, so I should have been able to answer it. For weeks after, my mailbag was full of derisive letters questioning my adventuring ability. I thought that I had made it clear in my review that I had actually worked through some of the latter stages, having been let in on the secret of the passwords to the second and third parts.

But for anyone still trapped, like Ian Nicholls, by the Willow Tree, *Cry Help*, which Fordo will receive in the form of Tim Bumbadil, who rescues him.

I received just three letters which didn't carp on about my lack of expertise, one from John Wilson of Rochdale, who is an adventurer of indefatigable stamina and resource, always willing to let me in on his hard-won knowledge, and the others from Nic Ford of 25 Canada Road, Cobham, Surrey KT11 2BB, and Mr R Atkins. He lives at 1, The Paddocks, Potton, Nr Sandy, Beds SG19 2QD, and is a mine of information about the game and quite willing to help sort out problems.

Since then, however, my mailbag has been full of letters asking for help, and in fact *Bored* has figured more than almost any other adventure in this regard. Peter Martin of Cyprus was stuck in the Willow Tree but has since solved that problem, only to come up against the next one, that posed by the body-poppin' Barrow Wight. If you wait around long enough, Peter, he will eventually give you a clue which will come in handy at a later stage. Then go across the Downs again, West West North and East to the Inn.

Scene-setting

One of the trademarks of *The Quill* is the way in which pictures are drawn only on your first visit to a location, and Mark Bennison draws our attention to the fact that this can be used in solving mazes – just find three places in which a graphic appears, thus enabling you to draw a map. This is general information though, as you will have a map at the maze in Part Two if you do things in the right order!

Part One is not too hard, being basically an exercise in scene-setting – all that must be done is a lot of hanging about. Two conditions have to be met in order to finish this section, you must ensure that Aragont remains with you, and pick up the object mentioned by the Breakdancing Barrow Wight.

Plain sailing

I won't tell you where this is, it's not hidden, but you must have it and use it in the last location. If you get through the problem here (it's not too difficult), you'll be given the password to the next part.

```
What was Fordo to do ?
*S
However, Fordo couldn't go in
that direction.

Bimbo stood up on his chair at
the far end of the tent. The
noise quietened down to a dull
roar.
"My fellow boggits", he began.
There was a chorus of belching
from the fellow boggits.
 As much as I'd love to stay
 and annoy you, I can't. So,
 goodbye!
There was a large explosion
(which killed several of the
guests) and when the smoke
cleared, Bimbo was gone!
Fordo wandered outside.
```

Bored of the Rings

Part two is, I think, much more interesting than the preceding part – the puzzles are more demanding, the responses from the program are more amusing and the graphics, too, are better. The first problem, however – how to get the map from the disreputable pixie – is plain sailing as long as one remembers one's adventuring history and uses the vending machine properly (*Examine*, as always works wonders here). This should give you the wherewithall to gain the necessary map of the ubiquitous maze which is not far away now.

Although you can indeed map the maze, the final exit doesn't exist without the pixie's map.

Somewhere in the maze you will come across a poster – get this and examine it to give you a clue to the method of dealing with Fwankie, Vulture Club and the rest of them. After the maze, you will eventually end up in the de Lorean lands. If you've been typing help frantically throughout the adventure, it is here that you'll find location 17 and the clue that you've been waiting for – just remember good old hippy Tim and what he gave you!

As for Part Three, well, space doesn't permit more than just a brief mention of the problem that has been foxing a lot of people, that of opening the microwave. This is actually the final action, and you simply have to *Open Box* (after cutting the string with the Magic Scissors) and then *Put Ring In Microwave*.

Bear in mind that there may be differences between the original version from Delta 4 and the later Silversoft release.

Upside down

I hope that I can return to *Bored of the Rings* at a later date. The problems are not massively difficult, but the way in which Fergus McNeill, the author, has conjured the atmosphere of Middle Earth, albeit a rather upside-down Middle Earth, almost disguises the limitations of *The Quill*, and is a joy to sit and play.

There are lots of things that can be done by way of light relief (try saying hello to the crows and wolves, or killing the Map Pixie), and the adventure is great entertainment.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon explaining your problem, send it to us and a fellow adventurer may be able to help.

Remember the system only works if those adventurers who have solved the puzzles get in touch! Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....
Problem ....
....
Name ....
Address ....
....

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Wanted

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ADVENTURE HELPLINE

Return to Eden on Commodore 64. How do you make Graunch the Golem ask you his riddles? John Harnett 22 Convent Street, Castleisland, Co Kerry Eire

Kentilla on Spectrum. How do I pass the death beetles? How do you cure the blue mushrooms? What is the significance of the silver dagger? J A Lockerby 44 Hyde Place Aylesham Canterbury Kent CT3 3AL

Eureka! on Spectrum. Adventure 1 How do you get past the brachiosaurus? Adventure 5: Where do I find 's ladies colours and how do I get a white charger? J Cameron, 8 Windy Hill, Hutton Brentwood Essex

Fourth Protocol on Spectrum. I have looked at sixteen files now are there any more? I cannot decode Fastasab a dying word. How do I stop Stanislav defecting (or help him)? Jenny Tyack, 48 St Swald's Close Wallingford Oxon OX10 0XE

Jewels of Babylon on Amstrad. How do I get out of the swag? How do I kill the crab? Stephen Lung 77 Chiltern Gardens Dawley Telford Shropshire TF4 2QH.

Arrow of Death Part 2 on Spectrum How can I wake up Arnid the Fletcher Carsten Musellech Ambergerstr 118A D4130 Moers 1 West Germany

Forest at World's End on Amstrad What do you do when you get to the witches hovel? Gary Law 6 Beden Close Luton Beds

Spiderman on Atari 800 How do I wake Doc Connors? How do I get out of the dust maze? Stephen Prince 15 Chestnut Drive Ashbourne Derbyshire

Jewels of Babylon, Message from Andromeda, Forest at World's End, Snowball. I have complete solutions for all Send SAE. Derek Carr, 'Thornlea' Oak Lane Mottram St Andrew Macclesfield, Cheshire.

Emerald Isle on Amstrad How do I launch the canoe? Where is the telescope? Where is the hammer? What use is the plank? What do I do in the mine? David Carr, Thornlea Oak Sand, Mottram St Andrew Macclesfield Cheshire

Dungeon Adventure on Commodore 64. What do I do when I have found the dwarf from the skeleton? Paul Wells, 478 Limes Avenue, Chigwell, Essex

The Fourth Protocol on Commodore 64. Where is the battery? R Smith, 431 Uttoxeter New Road, Derby DE3 3RY

Adventure on Electron. I can't find the princess? What are the magic words? I can't pass the giant rat blocking the door W Seamus Rusley 484 Pearse Villas Sallynoggin Co Dublin, Ireland.

The Hobbit on Commodore 64. I have the gold ring and I am out of the goblin's caverns. What do I go now? W E Gillam, 118 PRO COY RMP BFPO 36

The Sword of Hrakel on Vic20 How do I get past the wolf and open the small door in the forest and deal with the man in chains with the girl? A Roberts 17 Fallfield Road Tuffley Glos GL4 0ND

The Fourth Protocol on Commodore 64. What is the password for the lift in the Sentinel house? I can give any info on part 1 and also Shadowfire and Frankie Goes to Hollywood. David Roe 'Lindos' The Mall, Lismore Co Waterford Eire

Message from Andromeda, Return to Eden and Jewels of Babylon on Amstrad. Any help gratefully received Richard Altham 387 Whalley Road, Ramsbottom Bury Lancs

The Golden Apple on Spectrum. How do you get the emeralds? Of what significance is the parrot's answer? How do you get the jewel on the end bed? N McIntyre 27 Carrock Gardens, Milngavie by Glasgow G62 7RU

Madness and the Minotaur on Dragon 32. I need help with Everything Especially making light to descend the stairs obtaining the shield and going to the forest K Miller 86 Rannock Road, Redhouse Estate Sunderland, Tyne and Wear SR5 5EU

Spinx Adventure on Electron. How do I get across the lake? Alan Maycock, 37 Morley Grove Harlow, Essex

The Fourth Protocol on Spectrum. I have 98 per cent but I cannot answer Plumb's last two questions Can anyone help? J Sumner 10 All Saints Close Springfield Chelmsford, Essex CM1 5HT

Snowball on BBC. What is the code to the security door under the hatchdown? Ian Todd, 31 Flass Lane, Tarvin, Chester CH3 8LH

Return to Eden on Amstrad. Where do I go to get out of the maze of mazes and find auto sign? James McMahon 19 Sidehead Holdings, Stone House Lanarkshire

Fourth Protocol on Spectrum. What do I do about Tharn and Bracton? What are the answers to Plumb's questions? William Stevenson, 163 Beech Hill Avenue, Beech Hill Wigan, Lancs

Return to Eden on Spectrum How do you get past the plant which keeps strangling him? J Turtle, 7 Hughes Street Liverpool L6 2ED

The Quest for the Holy Grail on Spectrum. How can I prevent being framed by the knight? Any help welcome Jeanette Augoustis, 9 Sefton Road Wallasey Merseyside L45 8SS

The Hobbit on Spectrum How do I get out of the wine cellar? Linda Redrick, 12 Pengavne Basildon, Essex SS14 1QG

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Bubbling Under

Gyroscope/Spectrum (Melbourne House); Computer Hits (2)/Spectrum (Beau Jolly); Scarabaeus/C64 (Ariolasoft); Tau Ceti/Spectrum (CRL); Waterloo/C64/Spectrum (Warmaster); Imhotep/C64 (Ultimate); I of the Mask/Spectrum (Electric Dreams); Spike/Spectrum (Firebird); Battle of Britain/Amstrad (PSS)

All figures compiled by Gallup/Microscope

Top Twenty

1	(1)	Elite *(Spectrum/C64/BBC)*	Acornsoft/Firebird
2	(4)	Formula One Simulator *(Spectrum/C64)*	Mastertronic
3	(7)	They Sold a Million *(Spectrum/Amstrad)*	Hit Squad
4	(2)	Winter Games *(C64)*	US Gold
5	(9)	Finders Keepers *(Spectrum/C64/Amstrad)*	Mastertronic
6	(6)	Way of the Exploding Fist *(Spectrum/C64/Amstrad)*	Melbourne House
7	(–)	Robin of the Wood *(Spectrum/C64)*	Odin
8	(8)	Ten Computer Hits *(Various)*	Beau Jolly
9	(15)	Action Biker *(Spectrum/C64)*	Mastertronic
10	(3)	Monty on the Run *(Spectrum/C64/Amstrad)*	Gremlin Graphics
11	(–)	Beach Head II *(Spectrum/C64/Amstrad)*	Access/US Gold
12	(10)	Frank Bruno's Boxing *(Spectrum/C64)*	Elite
13	(5)	Fighting Warrior *(Spectrum/C64/Amstrad)*	Melbourne House
14	(–)	Who Dares Wins II *(Spectrum/C64/Amstrad)*	Alligata
15	(–)	International Karate *(Spectrum)*	System 3
16	(14)	Back to Skool *(Spectrum)*	Microsphere
17	(12)	Impossible Mission *(Spectrum/C64)*	Epyx/US Gold
18	(20)	Saboteur *(Spectrum)*	Durell
19	(13)	BMX Racers *(Spectrum/C64)*	Mastertronic
20	(18)	Daley Thompson's Supertest *(Spectrum)*	Ocean

Figures compiled by Gallup/Microscope

Readers' Chart No 52

1	(1)	Way of the Exploding Fist *(Spectrum/C64/Amstrad)*	Melbourne House
2	(2)	Fairlight *(Spectrum)*	The Edge
3	(3)	Hypersports *(Spectrum/C64)*	Imagine
4	(4)	Red Moon *(Spectrum/C64/Amstrad/BBC/Electron)*	Level 9
5	(5)	Monty on the Run *(Spectrum/C64)*	Gremlin Graphics
6	(9)	Nightshade *(Spectrum)*	Ultimate
7	(–)	Spy vs Spy *(Spectrum/C64)*	Beyond
8	(8)	Frank Bruno's Boxing *(Spectrum/C64/Amstrad)*	Elite
9	(–)	Nonterraqueous *(Spectrum/Amstrad)*	Mastertronic
10	(–)	Highway Encounter *(Spectrum/Amstrad)*	Vortex

Winning Phrase No 52: "Fairy lights on the tree soon" from R. Robertson of Mossend, Lanarkshire who wins £25. Honourable mentions for "SALT sign another lot of tripe?" from J Burnett of Camberley and "The art of PR – lost by A*str*d?" from Philip Arkley of Accrington, Lancs

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1..

2..

3..

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20	7 00	7 30	7 36	7 00
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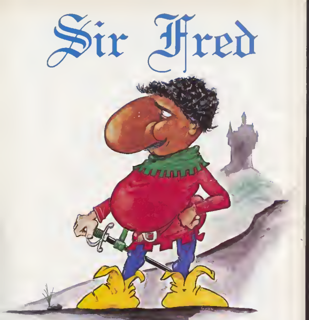
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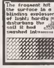

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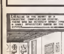
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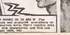














New Releases

COMMUNIST

Robin of the Wood from Odin Computer Graphics should not be confused with *Robin of Sherwood* by Adventure International. The latter is an adventure, the former - a multi screen Ultimate-style game.

Very pretty it is too, with finely detailed graphics and (on the Spectrum version) about the best sound effects you could reasonably expect. The central figures are neatly animated - watch out, in particular, for the way Robin smashes baddies over the head with his stave . . . vicious stuff.

The plot basically has you as Robin hunting around the wood for quivers of arrows and other objects which will help you gain your place at the archery tournament where lots of really nice things happen to the winner. Getting there involves witches that look rather like Valeria from the Addams family and an old Ent, who is in charge of three magic arrows. I always thought an old Ent was standard showbusiness shorthand for someone forced through ill luck to do the summer season at Rhyl, but apparently this one is a sort of mystic communist who redistributes cash to the poor. He wants paying, anyway.



Controls are kept to a minimum, and it is possible to play the game with just a joystick, though it's a while before you realise there is no command to pick up and drop things and all those processes happen automatically. Playing the game for a while I began to find it a little slow, but that may simply be a matter of not having succeeded very far into it. Anyway it's good to look at and gets my vote for the greenest game yet released.

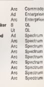
Program *Robin of the Wood*
Price *£8.95*
Micro *Commodore/Spectrum*
Supplier *Odin Computer Graphics, The Podium, Steers House, Canning Place, Liverpool, Merseyside L18HN*

LARGE SPRITES

Blast Buggy is the latest game from Shadow Games – a company that specialises in producing arcade games for the QL, an almost solitary and I'd have thought soul destroying occupation.

Though *Blast Buggy* is not without virtues, big colourful graphics amongst them, it suffers from a screen so flickery as it scrolls along I found it close to unplayable. I take it this is because of the considerable screen detail which has to be shunted about at speed. It doesn't work.

The game is hardly origi-

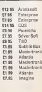


ORIGINAL TOUCHES

What to say about *Sweevo's World*? The game raises a number of problems chief amongst which is that the whole look of the game and much of the game play is derived from titles like *Knight Lore* and *Alien 8*.

I can hear the cries of rip-off beginning already.

However, just some, a very few, games actually equalled and even surpassed *Manic Miner* despite being derived from its basic ideas. So I think *Sweevo's World* surpasses both the Ultimate games from which it develops many of its ideas.



The game is written by Gargoyle, highly respected for their original style from *Tir Na Nog* to *Marsport* and to a certain extent it's a shame that this latest release should be less original. The game is, nevertheless, extremely entertaining and technically very proficient indeed.

What I like about it is the way the surreal irreverent and indeed determinedly irrelevant nature of the plot is maintained in genuinely funny animation, gameplay scoring and background settings.

Sweevo is a bit like *ET* in a way. Its chief characteristic is a walk and facial expression that suggests incompetence. In fact Swevo's idiocy is the reason for being given the task of clearing up the genic mutations on a planet that looks a little like something Terry Gilliam might have dreamed up.

One ton blocks have a habit of falling, giant pineapples litter the rooms, innocent floors are suddenly penetrated by giant fingers and a goose races madly around waiting for you to say Boo.

Viewpoint is à la Ultimate, as though looking above each room high in

This Week

Program	Type	Micro	Price	Supplier
Caves of Doom	Arc	Amstrad	£1.99	Mastertronic
Renegade	Arc	Amstrad	£6.90	Kuma
Wrigger	Arc	Amstrad	£11.99	Romantic Robot
Big League Soccer	S	Amstrad	£2.50	A Whitlock
Yie Ar Kung Fu	S	Amstrad	£7.95	Imagine
Yie Ar Kung Fu	S	BBC	£7.95	Imagine
Death Race	Arc	C16	£2.99	Atlantis
Formula One Simulat	Arc	C16	£1.95	Mastertronic
Tutti Frutti	Arc	C16	£1.99	Mastertronic
3 2 1	Arc	Commodore 64	£9.95	TBD
Friday the 13th	Arc	Commodore 64	£8.95	Domark
The Human Race	Arc	Commodore 64	£1.99	Mastertronic
Wild West	Arc	Commodore 64	£12.95	Ariolasoft
Mordon's Quest	Ad	Enterprise	£7.95	Enterprise
Star Strike 90	Arc	Enterprise	£7.95	Enterprise
Steve Davis Snooker	S	QL	£14.95	CDS
Q Calc	Ut	QL	£9.95	Parenthic
Robin of Sherwood	Ad	Spectrum	£7.95	Silver Soft
3 2 1	Arc	Spectrum	£9.95	TBD
Brainstorm	Arc	Spectrum	£1.99	Bubble Bus
Caves of Doom	Arc	Spectrum	£1.99	Mastertronic
Hypa Raid	Arc	Spectrum	£1.99	Atlantis
Rockman	Arc	Spectrum	£1.99	Mastertronic
Soul of Robot	Arc	Spectrum	£1.99	Mastertronic
Temple Tower	Arc	Spectrum	£1.99	Atlantis
Yie Ar Kung Fu	Arc	Spectrum	£7.95	Imagine

one corner Movement is therefore diagonally across the screen

Like the Ultimate games, part of the fun is simply getting through some of the rooms It requires the same sort of judgement, timing and use of likely looking objects that *Knightlore* had, but rings some changes with rising platforms, L Plates and sudden finger stabs

The preproduction version I played didn't contain the large number of other animated characters promised for the game If the relentlessly trudging goose is anything to go by we can expect something which equals or even surpasses Ultimate's cartoon quality robot figures

The game is going to need a lot more play before all of its bizarre secrets are laid bare For the moment I'd say I'm impressed. After the initial 'but this is just like Ultimate' reaction, I'm finding more and more original touches

The chances are you'll love it.

Program *Sweevo's World*
Price *£7 95*
Micro *Spectrum/ Amstrad*
Supplier *Gargoyle Games 74 King Street Dudley West Midlands*

nal. *Blast Buggy* is a version of that arcade game variously titled *Moon Buggy Lunar Buggy*, etc, which involves moving a roves vehicle across the craggy surface of a lunar landscape

The one virtue of the game is the large animated sprites. Other than that the flicker spoils the thing completely for me Shadow Games deserve plenty of credit for putting out QL arcade games, however, and God knows there isn't much else around. But I think you'll only enjoy this if you've never played it before, haven't seen it run ring on many other, superficially humbler, micros and are desperate for something to play on your QL

Program *Blast Buggy*
Price *£12·95*
Micro *QL*
Supplier *Shadow Games 70 Gooseacre Cheddington Beds*

57 VARIETIES

Brainstorm is a budget game from Bubble Bus and it's everything you can reasonably hope for from a cheap title It's a question of spot the references in the plot to countless other games that have gone before search the castle with your jetman, seek out various objects and destroy them, find keys to get through locked doors and watch out for the 57 varieties of animated sprite So no originality whatsoever is the bad news

The good news is that it's beautifully presented with nice big characters and detailed touches in the background to keep it interesting A certain amount of brain is required in reasoning out what object is destroyed by what other object

There's more than a couple of hours worth of wholesome destructive entertainment, well presented and lacking only originality for £1 99 That's fair enough

Program *Brainstorm*
Price *£1 99*
Micro *Spectrum*
Supplier *Bubble Bus Software 87 High Street Tonbridge Kent TN9 1RX*

SNAKE STRIKE

Wild West is a disc-based graphic adventure from Ariolasoft. It has many virtues but they aren't of the sort that conventional text adventure fans would enjoy The main point is that the input format is very restricted, at each stage there are only three options represented by little cartoon figures with speech bubbles appearing above their heads

What this means is that the game can't have the richness of puzzle found in the average text adventure On the other hand, it features some really excellent graphics used in unusual ways. For example, in the opening section one wrongly made decision caused a snake to strike, this is presented in a series of 'frames' of action with the snake getting bigger and bigger – a little like the sort of technique used in movies

Each section is relanvely short and they are differentiated by repeated disc access on the standard Commodore drive this is a pretty slow business and I found it irritating in the extreme I think that judging by the cute graphics and simple style of user input this is really intended as a game for fairly young children, and as such it has lots to recommend it.

Program *Wild West*
Price *£12 95*
Micro *Commodore 64*
Supplier *Ariolasoft Asphalte House Palace Street London SW1E 5HS*

This Week

Crazy Crazy	Arc	Vic20	£1 99	Mastertronic
Forbidden Tower	Arc	Vic20	£1 99	Atlantis
Royal Casino	S	Spectrum	£8 95	Mastertronic

Key Ad – adventure S – strategy-simulation
Arc – arcade Ut – Utility Ed – education

A Whitlock, 36 Old Quarry Close, Rubery, Birmingham B45 9TU **Ariolasoft,** Retail **Atlantis,** 19 Preband Street, London N1 8PF, 01-226 8703 **Bubble Bus,** 87 High Street, Tonbridge Kent TN9 1RX 0732 355962 **CDS,** Silver House Silver Street Doncaster **Domark,** 204 Worple Road London SW20 8PN 01-947 5624 **Enterprise,** 31-37 Hoxton Street London N1 6NJ 01-739 4282 **Imagine,** Imagine Software 6 Central Street Manchester M2 5NS **Kuma,** Kuma Computers 12 Horseshoe Park Pangbourne RG8 7JW, 07357 4335 **Mastertronic,** Park Lorne 111 Park Road London NW8 7JL, 01-402 3316 **Paientific,** 37 Cottesmore Road Hessle, North Humberside HU13 9JQ 0482 649187 **Romantic Robot,** 77 Dyne Road London NW6 7DS 01 625 9483 **Silver Soft,** Studio 7D Kings Yard Carpenters Road, London E15 2HD 01-985 5814 **TBD,** Units 18-20 Rosevale Road Parkhouse Industrial Estate Newcastle under Lyme 0782 520321

Back to the future

One of the inexorable realities of the chip industry is the constant erosion of cost per bit of semiconductor memory.

Dynamic Ram chips quadruple in size approximately every three years, 4K, 16K, 64K and now 256K, which is the current production standard One megabit chips are waiting to go into mass production and prototype four megabit chips are working in the lab

Over the last eighteen months the 256K bit chip has become the new standard and the price of the 64K chip has collapsed The drastic reduction of cost of the 64K chip has made some computers much cheaper over the last year or so The bigger the machine's memory the bigger the reduction, hence the QL halving in price

The long term effect is that everyone will have a lot more memory

The superb Apple Macintosh is a couple of years ahead of the average home computer in providing lots of memory. By looking at how all that memory is used in a Mac we can get an idea of what the next generation of home computers will be offering

The Mac comes in two sizes, advertised as 128K bytes and the 512K bytes Fat Mac (In fact this is incorrect because the Mac doesn't have any bytes at all, its 68000 processor works in 16-bit words The Mac really has either 64K words or 256K words) Either way you look at it the Mac has a lot of memory Memory upgrades are available up to 4 megabytes (2 megawords) which really is a hell of a lot of memory The fact that this is all useable by one person takes some believing, but it is

The first use is in helping to provide a user-friendly environment. This takes the form of windows, icons, pull-down menus and pointer (mouse) A further advance are the extensive help facilities commonly built into application programs If you get stuck the computer tells you how to get unstuck

Switcher is a program that allows several programs to live in the Mac at the same time The user can switch between them at will, say from a word processor to an arcade game to a database

A Ram disc is an area of memory set aside that acts as though it were a disc drive, but with virtually instant access This is very convenient for repeated file handling and is already a feature of the Amstrad 8256

A huge inconvenience of using a printer is waiting for it to finish before you can use the computer again. With lots of memory you can use a print spooler The spooler software sends whatever is to be printed to a special area of memory whence it is delivered to the printer at the printer's speed. This leaves the computer free to get on with the next job

Another sophisticated way it uses lots of memory is the cache This is an area of memory that is empty when you start using the computer As you work away it looks 'intelligently' at what you are accessing most frequently from the disk and holds it in Ram instead This makes access virtually instantaneous and speeds up whatever it is you are doing The contents of the cache are constantly changing as it up-dates itself to hold whatever it is you are using most

These few examples from the Mac serve to whet the appetite

As Ram prices continue to fall, though, home machines will soon be able to offer many of the same facilities

And the memory will bring with it more intelligent and considerably easier to use software

The micro will begin to be able to help you, rather than the other way around

Bruce Everiss

Puzzle No 185

I have just returned from the Post Office with some stamps From the information given, can you determine how many of each denomination I have?

i) I bought stamps in three denominations 13, 17 and 23 pence

ii) The three values were coloured green, blue, and red (though not necessarily in that order)

iii) In all, I bought 100 stamps

iv) I have at least one of each value.

v) The total bill was for an exact number of pounds

I m afraid that this will not enable you to find the answer, but if I were to add that I spent as many pounds as I bought red stamps, you would be able to give me the solution.

Solution to Puzzle 180

The four smallest values are 275 degrees centigrade 9527 deg.F), 2345 deg C (4253 deg F) 4685 deg C (8465 deg F), and 10865 deg C (19608 deg F)

```
10 LET C=-40
20 F=C*9/5+32
30 LET C$=STR$(C):LET F$=STR$(F)
40 IF LEN(C$)<>LEN(F$) THEN GOTO 150
50 FOR N=1 TO LEN(C$)
60 D$=MID$(C$,N,1)
70 T=0
80 FOR M=1 TO LEN(F$)
90 IF MID$(F$,M,1)<>D$ THEN GOTO 110
100 MID$(F$,M,1)="X":T=1:GOTO 120
110 NEXT M
120 IF T=0 THEN GOTO 150
130 NEXT N
140 PRINT C,F
150 LET C=C+5
160 GOTO 20
```

The equation for converting degrees centigrade into degrees Fahrenheit is F = C * 9 / 5 + 32. As we are only interested in whole number values we need only test centigrade values that are multiples of five These are converted to their Fahrenheit equivalents in Line 30 To determine if each of the pair of values contains the same digits each digit of the centigrade value is taken in turn and the Fahrenheit reading is scanned to detect any such value

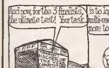
Winner of Puzzle 180

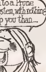
The winner is Bill Stanton of Avenue Court, St Albans, who will be receiving £10

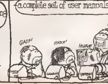
Rules

The closing date for Puzzle 185 is December 25

The Hackers









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